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

EDITED BY PROF. S. S. RATHVON.

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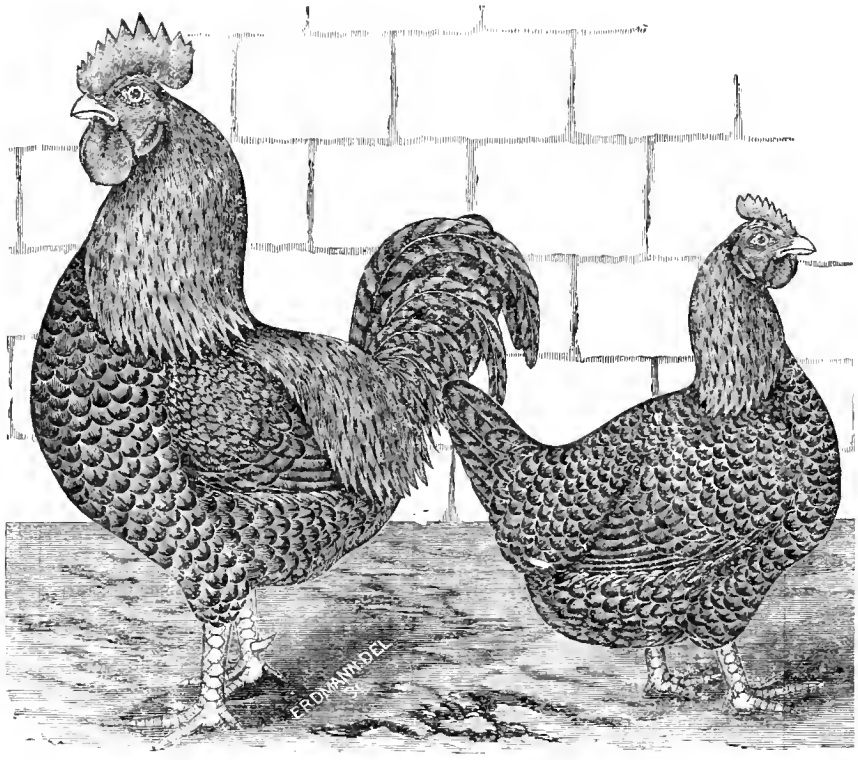

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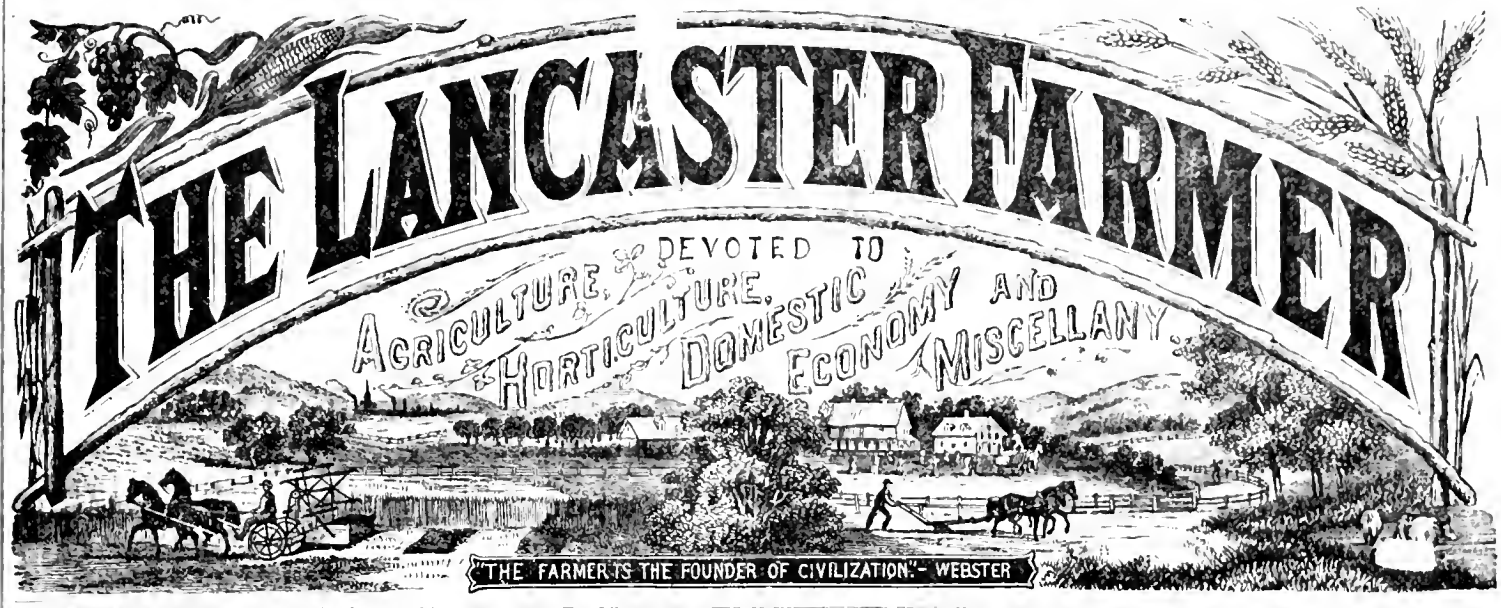

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PENNSYLVANIA RAILROAD SCHEDULE.

Trains LEAVE the Depot in this city, as follows:

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*.....	2:40 a. m.	4:05 a. m.
Way Passenger†	5:00 a. m.	7:50 a. m.
Niagara Express.....	10:05 a. m.	11:20 a. m.
Hanover Accommodation,.	10:10 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy.....	11:05 a. m.	12:40 p. m.
No. 2 via Columbia.....	11:07 a. m.	12:55 p. m.
Sunday Mail.....	10:50 a. m.	12:40 p. m.
Fast Line*.....	2:10 p. m	3:25 p. m.
Frederick Accommodation,	2:15 p. m	Col. 2:45 p. m.
Harrisburg Accom.....	5:45 p. m.	7:40 p. m.
Columbia Accommodation,.	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express.....	7:25 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.
Atlantic Express*.....	12:25 a. m.	3:00 a. m.
Philadelphia Express†.....	4:10 a. m.	7:00 a. m.
Fast Line*.....	5:20 a. m	7:40 a. m
Harrisburg Express.....	7:35 a m.	10:00 a. m.
Columbia Accommodation,.	9.10 p. m.	12:0 p. m.
Pacific Express*.....	1:25 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*.....	5:20 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 9:55 a. m., and will run through to Hanover.

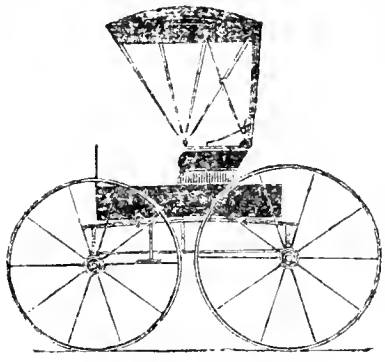
The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 2:10 p. m., and runs to Frederick.

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,



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Nov-1y

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor. LANCASTER, PA., JANUARY, 1880. Vol. XII. No. 1.

EDITORIAL.

"HAPPY NEW YEAR."

We commence this, the twelfth volume of the LANCASTER FARMER, under auspices that seem to foreshadow a prosperous future to our common country, and especially to those whose fortunes are cast amongst the ranks of its sturdy yeomanry, who find their compensations in its generous soil. Prosperity fosters new wants, higher aspirations, a wider range and a more expanded benevolence, and this perhaps is "all right" and proper, provided these impulses are judgmatically guided and kept under rational control. We would sincerely deplore a repetition of the trying ordeal through which the toiling millions of our country have been passing for more than half a decade of years, but if we cannot bring the experiences of the past to guide our footsteps in the future our history may repeat itself j t as certainly as a comet returns. Now, that prosperity seems to be dawning upon our country with "healing in its wings" we would congratulate our friends and patrons on the auspicious issue. As a legitimate means to a worthy end, we may be indulged when we desire to become an unselfish participant in whatever degree of success a bountiful Providence may vouchsafe to our fellow men, or as much of it as they in the plentitude of their feelings may bestow.

We hope our function is one of disinterested usefulness, and in that capacity we desire to serve the community, hoping for a reciprocation of the sentiment by extending to us their generous aid. We want the people, and especially the farmers, of our county and our State to regard the LANCASTER FARMER as one of their locally "fixed institutions," entitled to their permanent support, materially, morally and intellectually. Eleven years of unremitting and almost unrequited labor in the ranks of agricultural journalism ought to entitle the sponsers of THE FARMER to a more than mere temporary consideration, and our ambition is to make it a realization of the wish and will of the farming public; for we feel that we can be mutually beneficial to each other. We have no desire to occupy the *status* of a lounging interloper, a fawning mendicant, or an importunate *tramp*, but to be *one* of the people, working *for* the people and patronized *by* the people. We aspire to be a worthy representative of the interests of the farming public, and a literary exponent of the agricultural lore of our county, as well as the grand old commonwealth of which she has worthily been styled the "garden spot," and so endowed by the God of nature. We are sensibly aware that we cannot be this, and our patrons should also be aware of it—without the earnest co-operation of the honest tillers of the soil, and we therefore confidently look to them for moral, mental and pecuniary support, and our chief ambition is to make our journal worthy of such support. The number of those who feel that the great county of Lancaster occupies too conspicuous a position in the agricultural world to be without a local literary representative, is increasing daily, not only in *quantity*, but also in *quality*, and we desire for this feeling a wider and more lucrative sphere. Whether weal or woe betide, we have turned the prow of our bark "outward bound" for another annual voyage, and we ask our friends and patrons to "bag its sails" with a generous breeze, and we trust that the result of our cruise—among other things—may culminate in "lumps of gold" for them and us. Under any circumstances, however, may health, long life and prosperity be theirs, may 1880 be at least as fruitful as 1879, may smiling peace continue on earth, and "good will toward men." We are "to the manor born," we breathe a common atmosphere, and we tread a common soil, and there is no reason why we should not participate in a common interest. With this exposition of our attitude, allow us to wish one and all a thrice "*Happy New Year.*"

PENNSYLVANIA FRUIT GROWERS' SOCIETY.

This association will hold its twenty-first annual meeting at Bethlehem, Pa., commencing Wednesday, January 21st, 1880, at 3 o'clock, p. m., and continuing over the 22nd. A cordial invitation is extended to all interested in horticulture, floriculture and kindred pursuits, and those who can make it convenient to attend, we doubt not, will not only be interested but also edified and instructed. The association is particularly desirous that those having fine specimens of fruits, flowers or vegetables, should send them to the meeting for exhibition if they are debarred from attending themselves. The following programme of exercises will illustrate the general scope of the society's operations. We will give a synopsis of the proceedings in our February number, and also as many of the essays as we may be able to secure; in the mean time we would admonish all that they cannot "kill time" more appropriately than by attending this meeting.

Essays and Addresses.

"Fruit culture in the Cumberland valley," by A. E. Longsdorf, of Mechanicsburg, Cumberland county, Pa.

"The dark side of fruit culture," by Casper Hiller, Conestoga, Lancaster county, Pa.

"Plant life," by one of the members of the Society.

"Can we plant too many fruit trees," by Cyrus T. Fox, Secretary of the Berks county Agricultural Society, Reading, Pa.

"Science in the garden," by Prof. S. B. Heiges, York, York county, Pa.

"The management of an orchard," by Dr. J. H. Funk, Boyertown, Berks county, Pa.

"Some experience in strawberry culture," by F. F. Mereeron, Catawissa, Columbia county, Pa.

"Uses and abuses of pruning," by Jas. Calder, President State College, Centre co., Pa.

"Window Gardening," by Thos. Meehen, Editor Gardner's Monthly, Germantown, Pa.

Other papers and addresses may be expected in addition to the following questions which have been suggested for consideration and discussion:

1st. Are birds really the fruit growers' friends?

2d. Should the tree agent be encouraged?

3rd. Can the bearing of apple trees be changed to the off year?

4th. Can we introduce too many seedling fruits?

5th. Pear blight and yellows in the peach. What new facts concerning their cause and prevention?

A WORD IN TIME.

If the winter continues to be an *open* one, or as *long* as it continues an open one, farmers, gardeners and fruit growers, and indeed, housekeepers in general, who have shrubbery, trees, vines and plants on their premises would do well to give them frequent "overhaulings" during the winter, in search of grubs, beetles, bugs, worms, larvæ and pupæ, in order to be "forehanded" next spring. No man can tell the prolific results accruing from the neglected follicles, cases or sacks, bracelets of eggs, and egg-masses in general left dangling from or as hanging to the branches of trees and shrubbery during a single winter—they amount to many million. Some of these are very conspicuous, others require to be looked for, even closely searched for, but conspicuous as they are they are still neglected. Birds, if we had enough of them, might do as much of this work as is consistent with the ordinary balances of nature, but our birds are too few and too progressively fastidious in their tastes to be depended on. No doubt there are many who deem it too small a business to be hunting these minute objects in detail; but, tobacco growers at least, when the time comes to cultivate their crops think it essential to the value of the same to devote their special attention to the *tobacco worms* and other enemies that infest them, however laborious or unpleasant it may be. That same vigilance should be extended to other crops, and especially when such labors may act as a prevention rather than a cure. Watch the female moths of the "canker worm, as they come up out of the ground, and prevent them from ascending the apple trees to deposit their eggs. Cut off and destroy all the follicles of the "sack worm" which have been left of last year. These you may find on many trees, but especially on the *arbor vitæ*. Remove all clusters of webs from the trees and gather all the pupæ of the green "cabbage worms wherever they may be. Smash all potato beetles wherever you may find them hidden. By attending to these labors thoroughly during fine days in winter you will save a great amount of labor next summer, and be otherwise rewarded.

"DAIRY FARMING,"

Being the theory, practice and methods of dairying, by J. B. Sheldon, assisted by leading authorities in various countries. Published by Cassell, Petter, Galpin & Co., London, Paris and New York, in monthly parts, at *forty cents* per part.

This is a new and original 24 page quarto, in paper covers, embellished with beautiful illustrative plates, prepared specially for this work, besides numerous original wood engravings, explanatory of the various processes employed in dairying. We have patronized some of the best illustrated quarto publications of this or any other country, but none have surpassed or equaled the quality of the paper and letter-press in this. Every sheet is fit to receive the finest copperplate or steel impression. The simple title of "*Dairy Farming*," by no means expresses the quality and scope of the work, nor yet its comprehensive, practical and trustworthy character; it must be seen, and its pages carefully scanned, to form a proper estimate of its intrinsic value. Perhaps no industrial interest in our entire country has made greater or more healthy advances than that of dairying; and the wonderful and increasing demand for fresh milk, cream, butter and cheese has worked such a revolution in this department of our domestic productions that it would be impossible to return to the ancient order of things, even if we desired to do so. The old prejudices against "Book farming," and "Book dairying" are giving way to more liberal and progressive views on these subjects. The best, the most practical and the most economical ideas are now being embodied in serials and books, for the benefit of near and remote contemporaries, as well as posterity. All these considerations beget the necessity of such publications as the one under review as the proper representative of an industrial interest which promises to increase in the future far more rapidly than it has in the past, and also to enlist in its aid a greater amount of intelligence.

To systemize and popularize the developments of dairy farming on a comprehensive basis, it requires an ably conducted literary exponent, such, for instance as the one under consideration, which we believe will fully realize the anticipations of its patrons.

The following is a summary of some of the subjects which will be comprehensively and thoroughly treated in dairy farming.

1. The breeds, breeding and selection of cows for dairy purposes, with their feeding and treatment through different parts of the year.

2. Milking, the rearing and breeding of calves, and the general treatment of stock, both young and old.

3. The various and most recently improved methods employed in the production of cheese, butter and other dairy products in the best dairying districts of England, in the leading countries on the continent of Europe, and in America and Canada.

4. The various purposes to which dairy products are devoted, the ways in which they are disposed of, and the commercial aspects of dairy farming in its different branches.

5. The supplementary stock appertaining more or less specially to dairy farming.

6. The various cultivated crops found in the best dairying districts, including roots, artificial grasses, leguminous plants, cereals, &c., and also weeds and worthless grasses, &c.

7. Dairy homesteads, farm buildings, fences, shelter, the supply of water, &c.

8. The origin of soils, their formation and distribution, explaining the soils and climates that are best adapted to dairying, and the methods of increasing their adaptation.

9. Manures, natural and artificial, showing the necessary treatment in regard to different soils.

10. Drainage. Explaining the effects of drainage on various soils, and the systems adopted for securing the best results.

Subscriptions will be received for a part or the entire work, and sample copies sent on receipt of price. Cassell, Petter & Galpin, London, Paris, and 596 Broadway, New York.

COAL ASHES AND TOBACCO.

Preferring to submit the queries of our Marticville subscriber to a practical farmer for a practical solution, rather than our own theoretical views, we are enabled to present the following as his answer to said queries:

DR. S. S. RATHVON.—"Your postal card to hand. My experience in the use of coal ashes on land is very limited. When left in a heap exposed to the elements to decompose, they may be used to advantage on potato ground at the rate of 150 bushels to the acre, thoroughly worked in the soil, or 1-5 that amount when put in the row. Whether it is the plant food they contain, or the mechanical action on the soil, I am not prepared to say. I have never tried them on any of the cereal crops or tobacco, but would advise subcriber of Marticville to use part of his two cords in that way, also some on meadow or grass land, and report the result to THE FARMER. Being generally considered refuse, all the advantage derived from their use will be clear gain.

I would not depend much upon ground bone for tobacco, unless some other active fertilizing matter, such as good barnyard manure was added. It is too slow to decompose or change to prepared plant food for immediate effect. Applied a year previous to putting in the crop might be attended with better results."—*M. D. K., Creswell, Pa.*

POULTRY EXHIBITION.

The first fair of the Lancaster County Poultry Association closed at 10 o'clock, on Wednesday evening, the 7th inst., and in every respect was an entire success as it deserved to be—indeed, if such energy, perseverance and tact, as the managers of it manifested from begining to end, had not met with its proper reward, no reproach would have attached to the Society.

Experienced poultry exhibitors said that they never saw an exhibition of the kind so liberally patronized, from first to last, as the one held in Locher's building on this occasion.

Possibly all may not have been entirely satisfied with the result, especially those who may have entertained personal aspirations, but that is a contingency that can never be avoided, from the very nature of the case.

Messrs. W. T. Rogers, of Doylestown, Pa., and John E. Diehl, of Beverly, N. J., two acknowledged experts in the business, were the judges, having been selected by a congress of poultrymen, and, therefore, it is presumed that their judgment was fully reliable and reasonably satisfactory to the exhibitors. In another place in this number of THE FARMER we have inserted lists of entries and the awards of premiums as a permanent record that may be referred to with becoming pride by the members of the association and their friends. The event inaugurates a new era in the domestic enterprise of Lancaster county, and impressively illustrates that "some things can be done as well as others." Of course, whatever defects may have become apparent in this initiatory occasion, may be remedied in future efforts of the kind. As it is, the society has covered itself all over with glory."

MEETING OF BOARD OF AGRICULTURE.

The annual meeting of the Pennsylvania State Board of Agriculture will commence at Harrisburg on January 28, at 2 o'clock, p. m. The programme issued by the Secretary contains the following subjects for essays and discussion:

Wheat—the best variety from the miller's standpoint; the most economical farm fence; how can a farmer most economically maintain or increase the fertility of his farm? Is stock raising profitable in Pennsylvania? Farm fences and ways over the farm from a legal standpoint; the adornment of farm houses; are investments in land for renting profitable? What is the most profitable crop to succeed corn? Why is the apple not as extensively grown in Pennsylvania as in some other States? In addition there will be discussions upon any subject that may be introduced by members of the Board. The meeting will be held in the office of the Board, and an invitation is extended to all persons interested.

THE COMING STATE FAIR.

It can be definitely announced that the next State fair will be held in the Permanent Exhibition Building. This course was decided upon at a conference held at the Permanent Exhibition Building on Friday last. Those present were Dr. Egle, D. W. Seller and Elbridge McConkey, of Harrisburg; W. S. Bissell, of Pittsburg; W. McDowell, of Union county—all representing the Pennsylvania State Agricultural Society, and Dr. J. A. Paxson, representing the Permanent Exhibition Company by authority of the Board of Directors. The fair will commence on September 6 and continue for two full weeks. A sum varying from $30,000 to $35,000 will be offered in cash premiums. This will be the largest sum ever appropriated for this purpose by the Society.

CONTRIBUTIONS.

FOR THE LANCASTER FARMER.

SHRINKAGE IN KILLING HOGS.

The raising and killing of hogs is so general that few families miss having at least one or two up to half a dozen or more, especially families living in the country, and as regular as "butchering day" comes, just so regular is the desire to weigh the hogs, and it is generally done.

But of the many persons who weigh their hogs, few have the means of determining the loss per hundred of live weight in the dressing. Years ago the popular opinion was that *fat* hogs lost about twenty pounds per hundred of live weight, and you hear the same opinion expressed very often even now. That the loss in dressing may have been thus large a generation or more ago I have not the least doubt but the "march of improvement" has also affected the offal of the porkers.

Having platform scales quite handy we determined this season to find out the percentage of waste and give it in the table below:

	Lyic weight.	Dressed weight.	Shrinkage.	Per cent. of shrinkage.	Age in months.
1	355	308	47	13.2	13
2	350	303	47	13.4	14
3	330	279	51	15.5	14
4	379	322	57	15.0	11
5	363	310	53	14.6	11
6	328	278	50	15.2	11
av.	351	300	51	14.5	
a	407	354	53	13.0	
b	394	331	63	15.9	
c	387	330	57	14.7	
d	630	566	64	10.2	27
e	574	540	34	6.0	22

It is a little unfortunate that in preparing the above table I can give the Essex breed only, or their grades. The live weight, or the dressed weight could have been given in numberless cases, but no data was at hand on which to determine the shrinkage.

Pigs Nos. 1 to 3 were regular grade Essex from a white sow of good quality; the first showed most Essex blood, being entirely bla k and difficult to distinguish from a pure bred; the second was black and white; Nos. 4 to 6 had also a dash of Essex blood, and as in the case of the others the one with the most black, No. 5, showed the least shrinkage. The average shrinkage of the whole six was only 14½ pounds per hundred of live weight.

a and *b* are those with the least and the greatest, and *c* the average shrinkage of a lot of ten hogs slaughtered, as given in *American Agriculturist*, by Mr. Joseph Harris, a noted breeder of pure Essex stock, and I have no doubt the whole ten were pure stock, but it is not stated so. The average of these ten is very close to the average of the six grades in the table so that we may infer that in this particular breed the average shrinkage is somewhere in the neighborhood of 14½ per cent. when the hogs are fat.

At *d* we have a well matured hog, twenty-seven months, being plenty long enough to feed any pig, and probably a longer time than is profitable to the feeder. The hog lost only ten and one-fifth pounds to every hundred of live weight, and is certainly less than can be expected, except in some special case, as in this, where the object is less the making of money than that of making a prize pig to show at some agricultural fair.

But if we think the above something wonderful as to the small amount of shrinkage, what have we to say to *e* that weighed 574 pounds alive, and *slaughtered* 540 pounds, the shrinkage being only 34 pounds, all told, or less than six pounds per hundred of live weight. As far as I am concerned it would require an affidavit before a "squire," strengthed by a certificate from some reliable minister, to keep me from doubting the man's statement

We may now inquire as to what really constitutes offal. Shall we designate as offal only that which is never used under any common circumstances by any one? We know that the heart, liver and lungs are generally cut up into pudding meat, and so this would not be offal, though in our weighing this was not included; then we have further the stomach and the intestines which are made use of as casings for sausage and pudding meats; some also use the blood for blood-puddings. If all these are weighed it will make a considerable reduction in the shrinkage, but not down to six per cent.

In an experiment made by two Englishmen,

Messrs. Lawes and Gilbert, in fattening pigs, the average weight of the "offal parts" in fifty-nine, moderately fat, was as follows, per hundred pounds of live weight:

Stomach, intestines, bladder and their contents, 7 lbs. 9½ oz.; heart, lungs, liver and sweet-bread, 2 lbs. 14 oz.; caul and intestinal fats, 1 lb. 9½ oz.; blood, 3 lbs. 10 oz.; other parts and evaporation, 1 lb. 12¼ oz. This makes a total of about 17½ pounds, and as the pigs were only moderately fat we would probably have to abate the weight a fifth, or, even a fourth in those that were quite fat.

The percentage of shrinkage is also much influenced as to the time the hogs are weighed when alive. The first six in the table were weighed just before feeding time, all the others had been fasted. I think, perhaps, for as long a time as twenty-four hours. Such a course of fasting of course lessens the gross shrinkage a great deal, and if now *everything that may or can be used* be weighed we have no doubt that the shrinkage might be reduced to something like six per cent.

The usual published statement of the shrinkage of hogs is of little value on account of the vagueness of the term "offal." The customary practice in buying and selling live and dressed hogs would serve as an excellent standard, and would be something like the following;

1. Weigh the hog just before feeding time.
2. Weigh the dressed carcass only.

This is fair for all, for we know that the carcass is used by all; in the other parts there is this or that rejected as the fancy or the taste of the person dictates.—*A. B. K.*

For The Lancaster Farmer.

PROF. BLOUNT'S WHITE PROLIFIC CORN.

In a late farm journal the announcement was made that Prof. Blount's white prolific corn should properly be named Blount's folly. If such a notice had met my eye before I invested fifty cents for a quarter of a pound of said seed I probably would have left it alone. But I have a turn for experimenting with new varieties of seed, and where the "folly" comes in in this experiment I am unable to see. In order that the corn might be as much as possible out of the reach of pollen of other varieties I was under the necessity of taking a patch that was poor and otherwise unsuited for a corn crop. The manure given the patch was from 600 to 800 pounds of Acid South Carolina Rock to the acre, and a handful of hen manure to each stalk at hoeing time. The ground was marked out three feet apart about the middle of May, and the seed dropped simply about two feet apart. Owing to the rough condition of the ground nearly one third of the seed failed to grow, and after replanting there was still about one sixth of a failure.

The cultivation was thorough — deep enough to satisfy the most radical root pruner.

Size of plot one-twelfth acre; yield thirteen bushels of ears which shelled 32 pounds to the bushel, making at the rate of over eighty five bushels per acre. If the set had been full the yield would have been nearly one hundred bushels per acre. Many of the plants had from 2 to 5 and even more ears, equivalent to ears from 20 to 40 inches long. There is nothing extraordinary in the yield. One hundred bushels of corn have often been grown on an acre, and should much oftener be grown. But in this case, taking into consideration the quality of the land, fifty bushels of our common varieties of corn would have been an extra crop.

In very rich soil this corn will have a tendency to make immense stalks, and in this probably the farm journal's "folly" lays.

But, surely, the intelligent cultivator knows that this exuberant plant growth can by proper cultivation be checked, or I should rather say changed into a seed forming power. If it should ever be practicable to double our present yield of corn per acre, the result will be attained by Blount's prolific, or by an improvement on it.

A good set, with 30 inches of corn to each stalk will make a yield of over 150 bushels per acre. Who will be the first to accomplish it?—*Casper Hiller.*

ESSAYS.

BOTANY.*

We unquestionably live in an age of progress and improvement in the arts and sciences, and we are striving to effect a corresponding improvement in all that relates to agriculture. We are inquiring how to increase the products of the soil, and especially our cereals.

We meet on this occasion, however, more particularly to discuss questions relating to the improvement and increase in the quantity and quality of our fruit; an occupation that yields its pleasures, and at the same time its compensations, not only to ourselves, but also to the communities in which we live. It will be generally admitted that the work in which we are engaged is a praiseworthy one, an object of pursuit in which more of our rising generation ought to be engaged. The question arises, how to induce our boys and girls to take an interest in the production of fruit, and in general what may be termed the "*Staff of Life.*" I am of the opinion that the study of botany in our public schools would go very far in familiarizing our children with plant-life, and engender an interest in horticulture and floriculture at least. I would exalt botany to a conspicuous position in the *curiculum* of the school, even if I were compelled to have a little less astronomy, geography and geology. A knowledge of the length of the River Nile, or the Amazon; the height of the Himalayas, or the Andes; the depth of the Polar Sea, or the German Ocean; the distance from the earth to the sun or moon; the nature of Saturn's rings, or the composition of Venus, are all well enough in their way, and useful as elements of knowledge, but it is a poor compliment to knowledge to know all these things and yet be totally ignorant of the name, the habits and the development of the commonest plant beneath your feet. The first step to get the young folks interested in botany is to give them practical lessons on flowers, plants, shrubs and trees. A small garden should be attached to every playground wherever it may be, and these should also occupy the *campus* of every school. If the scholars were to engage understandingly in the cultivation of flowers, plants and shrubbery, a majority of them, no doubt, would become more or less interested in these pleasant labors, which would ultimately result in a love for the occupation, and beget, as it were, a "second nature," for

> "T'is education that forms the common mind,
> Just as the twig is bent the tree's inclined."

One of our greatest florists in the United States was professionally a druggist. He commenced the cultivation of a few flowers as a first essay in floriculture, and from that small beginning he pressed onward and upward until he attained the highest floral fame. A German professor on the continent of Europe commenced the cultivation of a few flowers as a recreation and a pleasure, and from that little beginning he continued on step by step increasing his knowledge of plant-life and agricultural products until he became famous. He made a special study of how to improve poor and unproductive lands. He offered to start an agricultural school with a special understanding that its *campus* should consist of 200 acres of what was considered "wornout" land. He went to work on it, and made it a fertile plantation, and that too from fertilizing material which he found on the place. He did not rely upon buying fertilizers in order to enrich his soil. We are not only not advancing in botany, but on the contrary we seem to be going backward in the knowledge of plants and the nature and cultivation of our American forests. The reason we are behind our German and English cousins on the other side of the Atlantic is that we have all imbibed too much of the spirit of "Young America"—merely pecuniary interests—or in plain English, making money has almost absorbed our entire thoughts and purposes. The first question asked is, "does it pay?" So I apprehend it will be in regard to botany. The question will be asked "*does it pay?*" not so much will it pay *hereafter*, but will it pay *here* and *now*—we want the golden eggs without waiting on them—just *now*.

As one of the evidences that we are going backward—at least not forward—in botany, I may mention that I know of a German work on botany, published in Germany in 1731; it is well preserved, has 1200 pages and 3000 illustrations of the plants of Europe. It is indexed in nine different languages, and is a botanical and medical work combined. I saw another work on the same subject, and of the same size, in the library of Abraham Cassel, of Montgomery county, also indexed in different languages, which treats of vegetables, plants and fruit and forest trees, published in 1741. I may also mention Philip Miller's "Gardener's Dictionary," published in London in 1732. It is a folio of about 1,000 pages, without an index, but the subjects are arranged alphabetically, and when compared with modern works of the same character it is difficult to determine the amount and character of the progress we have made in 148 years, if any. Such valuable books were never, to my knowledge, published in America. If some of those old books were translated into the English Language, or the most valuable extracts from them published in volumes of smaller size, or were condensed into common handbooks with the English names attached to all the plants, shrubbery and forest trees, it would be a benefit to the agricultural community.

Although the Latin names in botany, as a general thing, are distasteful to those who have received only a common school education, and are not easily kept in memory, yet I would not entirely discard them. They might be so parenthecised in italics that the composition could be read without pronouncing them, and still the sense be preserved; because, however, objectionable they may be they still perform an important use where there is a different common name in different localities for the same object. No doubt these technical names have kept many young folks from taking up botany as a study. I have a variety of trees and shrubbery in my enclosures, and very few would comprehend such classical names as *Conifer*, *Quercus*, *Populus or Betula*, but the familiar names of Pines, Oaks, Poplars or Birches, they would readily understand. These difficulties would, however, in time be overcome if the study of plants, shrubbery and fruit and forest trees was introduced into our common, or public schools. It would introduce a new era in our system of education, in the engagements of domestic life, and at the same time result in a pecuniary benefit to the community and the country. It would be the advent, as it were, of a new creative power, and scripturally assist the earth in "bringing forth its increase." It doubtless would also have a tendency to keep our rising generation from leaving their country homes and hankering after the uncertain and unsatisfying blandishments of city life, those homes where they spent their earliest, their healthiest and their happiest days, and where, instead of being mere dependents, they could continue to be local producers of the needed stuff to feed a hungry world. To benefit himself and supply his city cousins with the "staff of life," would in all probability secure the countryman the enjoyment of better health, and a green old age," make December as pleasant as May." It might also effect beneficially the young folks who have been raised in cities and towns; it might induce them to remove to and settle in the country, where cheap lands could

*Read before the Pennsylvania Fruit Growers' Society, at Bethlehem, Pa.

be purchased, and become cultivators of the soil, to become producers instead of mere consumers, to raise vegetables, plants, fruit, trees and shrubbery, as well as wheat, corn and other products to feed those in the towns. It would employ and remove the floating population of the towns into the rural districts, break up selfish trades-combinations, and restore peace and prosperity over the whole country. It would cause two blades of grass to grow where but one, or none, is growing now, and strengthen the bulwarks of the nation.

These views may seem utopian, but a time will surely come in the experimental history of our country when their realization will be a necessity. Men have need to see and appreciate the handiwork of their Creator, that unseen power which animates them, that invisible operation which invites their visible co-operation, and is ultimated in the useful and beautiful products of the soil. These are far superior to anything that can be produced by science or art. Indeed they constitute the essential material basis upon which alone science and art can be manifested. All that is useful and beautiful in science and art, is but the *type*, of which nature is the *antetype*; when a man is indifferent to, or scorns, neglects, or contemns the bounteous productions of nature he becomes a moral suicide, if not a willful malefactor. Amateur botany is extending itself; we see it in the greenhouse, the conservatory, the garden, in the yard, on the lawns and in the windows of mansions to an immensely greater extent than it was noticed only ten years ago, and every where its influence is refining; but we need to have its elementary principles taught in our public and private schools, as a centre from whence its rays may diverge until they reach and vivify the very circumference of social humanity.—*L. S. R.*

RECENT ADVANCES IN ARCHAEOLOGY.*

Archaeology has been generally defined as the science of antiquities. The subject has, however, grown beyond its title, and archaeology must now be regarded as a generic term, including a number of sciences—some natural and others artificial, but each of them sufficiently comprehensive to demand the labor of a life time from him who desires to become familiar with all its various details. With all this division and subdivision, the whole subject is, however, pervaded by one general idea, and archaeology, therefore, deserves to be called a science, in the highest sense of the term.

Among all the sciences there is not one which has of late years progressed so rapidly. Its relations to ethnology and anthropology have been fixed; the order of the subordinate sciences has been established; and under each one of these, discoveries have been made of which the world had never dreamed. It seems hardly credible that not ten years ago the President of the Board of one of our colleges should have remarked, in answer to a query concerning the duties of a professor of history and archaeology: "The duties of a professor of archaeology involve at most a little instruction in Grecian and Roman antiquities. It is a meaningless term, expressive of history in one of its aspects. It is used to round a sentence and nothing more."

It seems strange that any one should undervalue the importance of archaeologic study. Apart from the fact that it furnishes a great part of the materials of history, it is a constant pleasure to those who understand its signs and symbols. There would be few inducements for an American to visit the old world if it were not for the remains of that ancient civilization to which we can trace link by link the origin of all that is graceful, ornamental and beautiful in our architecture, sculpture and the arts of design.

The archaeologic sciences may conveniently be regarded as consisting of three widely contrasted departments: 1. Prehistoric archaeology; 2. Historic archaeology; 3. The minor archaeologic sciences. Unfortunately, so far as I know, these separate branches are nowhere treated in a single volume, so that it is difficult for a beginner to obtain that comprehensive view of the whole field which is necessary for the intelligent study of any one of its departments.

It is said, by some writers, that archaeology naturally begins with that branch of geology which is known as paleontology, and which is properly the natural history of the primeval world. This, however, is not strictly speaking correct. Paleontology is not so much a part of archaeology as a condition for its intelligent study. It is also very desirable to have some knowledge of comparative anatomy, and the principle of the correlation of forms, but as archaeology is principally concerned with the beginnings of art, it is not necessary to give our attention to any period earlier than those in which we first find evidences of human skill. There has been much difference of opinion as to the time when man appeared on the stage. It is however, generally conceded that he has existed in Europe during all the past tertiary periods; and though the facts of prehistoric archaeology by no means indicate so extreme an antiquity for the human race as was at first supposed, it is also true that they cannot be made to agree with the chronology of Petavius and Archbishop Usher.

If, however, there is some difference of opinion among archaeologists concerning the antiquity of man, it must be acknowledged that they have labored with reasonable unanimity in combating the arguments of the philosophers who hold that man was manifold in his creation. They have shown that mankind consists of a single species, which wherever its migrations can be traced, can be derived from a single locality—they have shown us that, in its earliest developments, humanity was the same all over the world—that in the old world and the new, primitive man was in possession of weapons, implements and ornaments, which were at least closely similar, if not precisely identical. In short, all these researches go to sustain the truth, asserted long ago in the sacred Scriptures, that "God has made of one blood all the nations of men."

A few years ago archaeologists were inclined to hold that the course of civilization had everywhere been precisely the same; that there had been everywhere the same succession of epochs, or ages, to be distinguished by the kind of weapons and implements employed; and these ages, it was popularly believed, were separated by a hard and fast line, so that the one never encroached on the territory of the other. Thus, for instance, it was supposed that the rough-stone, or Palaeolithic period, always preceded the polished stone, or Neolithic; and that men everywhere used bronze implements for many centuries before they discovered the use of iron. Recent investigations have rendered it evident that these statements must be received with considerable limitations. In this country it has been found that rough and polished stone implements were employed contemporaneously, and that where a difference in age must be recognized, it is found that the polished implement is older than the "palaeolith"—thus indicating that the aboriginal inhabitants of America were more skillful and cultured thousands of years ago than at a more recent period. So too, in Europe, it is found that in some places rude methods of producing iron were employed before the people had learned the art of making weapons of bronze. It is probable that archaeologists will continue to distinguish between the age of stone and the age of metal, and that the various subdivisions will be noted as a matter of convenience; but it has come to be recognized that no such distinctions can be of universal application.

In every department of archaeology earnest students are at work, and have recently made gigantic progress. It is not necessary that we should consider at length the recent discoveries of extensive palafittes in Switzerland and Lombardy, which have added tens of thousands of specimens to the great collections of prehistoric art, and especially to those which illustrate the bronze period. Having enjoyed an opportunity of examining the extensive museum of the Royal Society of Antiquaries at Edinburgh, and the immense collection of Dr. Ferdinand Keller, "the father of prehistoric archaeology," at Zurich. I venture to say that the artistic skill manifested by these mysterious races was far in advance of anything which I had ever anticipated. Engravings give us but an imperfect idea of the beauty of many prehistoric weapons and ornaments. There are specimens of bangles and brooches, representing forms of animal and vegetable life, which would have been no discredit to the earliest artists of Greece and Rome.

In the various departments of historic archaeology progress is constant and rapid. Dr. Schlieman astonishes us with a series of discoveries, each one more wonderful than the preceding, which will require years of study before they can be assigned their proper place in the domain of knowledge. George Smith, just before his death, announced that he had discovered the ruins of Carchemish, the ancient capital of the Hittites, and prophesied that they would prove even more interesting than those of Nineveh and Babylon. There they remain awaiting investigation, and soon, no doubt, another page will be added to the history of our race.

In palaeography the recent advances have been especially wonderful. One by one the enigmatic inscriptions of the orient have yielded to the patient toil of European scholars. In consequence of the labors of such men as Champollion, and at a later period, Rawlinson, Oppert, Lassen, Spiegel and others; the history of the East has been entirely rewritten. The Cypriote inscriptions, which were regarded as an unfathomable mystery, were read by George Smith, with a degree of facility which is, in a certain sense, more incomprehensible than the inscriptions themselves. Recently especial attention has been given to the inscriptions of Central America, and they are beginning to tell their secrets. In the proceedings of the Ethnographic Society of France, which I have the honor to present to the Society, there is an article by the great Assyriologist, Dr. Oppert, in which he expresses his delight that the key to the hieratic characters of Yucatan has at last been discovered by Count Leon de Rosny. Then follows a discourse by Count de Rosny, giving an account of the process by which he discovered the phonetic meaning of a number of these hieroglyphics. These articles are very interesting, but we cannot enter into particulars. It is not too much to say that the most difficult part of the work is accomplished, and that we may soon expect new light to be thrown on the prehistoric races of America. When John L. Stephens mused on the ruins of Uxmal and Copan he exclaimed, "O, that some Champollion would arise to reveal the mysteries of these ancient cities, where all is doubly night." The Champollion is on his way, and future generations will no doubt study the history of nations of which we do not even know the name. There is nothing hidden which shall not be revealed. History is approaching its final consummation, but before it is reached its accounts must be made up—the most remote recesses must be investigated. It must be seen that human history is not the blind working of unconscious forces; that nothing has occurred in vain; but that all things have conduced to the development of a "prehistoric" plan that will at last stand revealed in all its symmetry and beauty. Considered from this point of view, every discovery, however apparently insignificant, acquires a new meaning and throws light on the greatest of mysteries—the development of the Providence of Almighty God;

*Read before the Lancaster Linnæan Society by Rev. J. H. Dubbs, D. D., December 27, 1879.

SELECTIONS.

THE LUNG PLAGUE.

Pleuro-Pneumonia Contagiosa.

Through the favor of Secretary Thomas J. Edge, of the State Board of Agriculture, we have been favored with advanced proof sheets of an able and exhaustive article on the "Lung Plague, or Pleuro-pneumonia," which will appear in the forthcoming annual volume issued by the State Agricultural Society. It is of general interest to stockmen and farmers, and we avail ourselves of the opportunity of quoting from it liberally, as this fatal disease has to a limited extent secured a foothold among the herds of this county, and threatens to prove most destructive unless our cattle owners are prepared to sound the note of warning at the first appearance of the disease and thus keep it within bounds or exterminate it entirely.

What the Disease has Cost.

The immense loss which must result from the infection of the large herds of the West and Southwest has been pointed out. It has been shown that England, with only six million animals, has lost more than $500,000,000 by this disease since its introduction from Holland, and that in the same ratio the introduction of the disease among twenty-eight million cattle would cause a loss of $2,000,000,000 in an equal time. That in our own State the loss would be in a short time seriously impair an important interest, and would prove eminently more fatal in the West, where all interests are more or less intimately connected with that of stock raising, and where all interests thrive or languish in sympathy with it.

Massachusetts, by prompt and vigorous action, eradicated the disease from her borders, and last year expended less than fifty dollars for this purpose. It is true that the struggle cost her nearly $68,000, but her stock-owners well knew that an immunity from the disease was cheaply purchased at this price. The disease had insidiously crept from dairy to dairy, from farm to farm, and from stock-yard to another, until four of the leading dairy counties of the eastern portion of the State were infected. In these counties the entrance of the disease into a herd was considered as tantamount to a loss of from twenty to fifty per cent., and sometimes exceeded even the latter rate. Dairies were broken up, the business abandoned, and, in many cases, the surviving animals sold and scattered, thus forming centers of further contagion.

Spread of the Disease.

Agents of the British Government, accompanied by competent veterinary surgeons, who were familiar with the disease during its ravages in England, starting from Canada, found it in all the Atlantic States, from Massachusetts to Carolina, and, reporting its presence to the home Government, a quarantine was ordered on all American cattle. They failed to recognize the fact that the cattle thus imported did not come from infected districts, and that they did not come in contact with infected cattle; but, finding *supposed* cases of contagious lung plague (pleuro-pneumonia) in the cargo of the Ontario, at once issued the edict which practically stopped the importation of live American cattle, at least for a time.

The farmers of our State were aroused to the imminent danger resulting from the permanent location of the disease in this country. Several States, for mutual help and protection, had joined in an endeavor to stay the pest, and the assistance of our State was asked. Our past losses were estimated at from $500,000 to $750,000, and good judges places the amount even higher, and it was impossible to estimate the loss, if nothing was done to prevent its further spread.

The result was that all the facts in the case were laid before the Joint Committee of Agriculture of both Houses of the State Legislature. A draft of an act was offered, and after being amended, passed both branches and became a law on May 1, 1879. The following is the text of this law:

An Act

To prevent the spread of contagious or infectious pleuro-pneumonia among the cattle in this State.

§ 1. *Be it enacted, &c.*, That whenever it shall be brought to the notice of the Governor of this State that the disease known as contagious or infectious pleuro-pneumonia exists among the cattle in any of the counties in this State, it shall be his duty to take measures to promptly suppress the disease and prevent it from spreading.

§ 2. That for such purpose, the Governor shall have power and he is hereby authorized to issue his proclamation, stating that the said infectious or contagious disease exists in any county or counties of the State, and warning all persons to seclude all animals in their possession that are affected with such disease or have been exposed to the infection or contagion thereof, and ordering all persons to take such precautions against the spreading of such disease as the nature thereof may in his judgment render necessary or expedient; to order that any premises, farm, or farms where such disease exists or has existed to be put in quarantine, so that no domestic animal be removed from said place so quarantined, and to prescribe such regulations as he may judge necessary or expedient to prevent infection or contagion being communicated in any way from the places so quarantined: to call upon all sheriffs and deputy sheriffs to carry out and enforce the provisions of such proclamations, orders and regulations, and it shall be the duty of all the sheriffs and deputy sheriffs to obey and observe all orders and instructions which they may receive from the Governor in the premises; to employ such and so many medical and veterinary practitioners, and such other persons, as he may from time to time deem necessary to assist him in performing his duty as set forth in the first section of this act, and to fix their compensation; to order all or any animals coming into the State to be detained at any place or places for the purpose of inspection and examination; to prescribe regulations for the destruction of animals affected with the said infectious or contagious disease, and for the proper disposition of their hides and carcasses, and of all objects which might convey infection or contagion, (provided that no animal shall be destroyed unless first examined by a medical or veterinary practitioner in the employ of the Governor as aforesaid;) to prescribe regulations for the disinfection of all premises, buildings and railway cars, and of objects from or by which infection or contagion may take place or be conveyed; to alter and modify; from time to time, as he may deem expedient, the terms of all such proclamations, orders and regulations, and to cancel or withdraw the same at any time.

§ 3. That all the necessary expenses incurred under the direction or by authority of the Governor in carrying out the provisions of this act, shall be paid by the treasurer upon the warrant of the Auditor General, on being certified as correct by the Governor: *Provided*, That animals coming from a neighboring State that have passed a veterinary examination in said State, and have been quarantined and discharged, shall not be subject to the provisions of this act.

The Governor Appoints an Agent.

Immediately after the passage of the above act Governor Hoyt appointed an agent, who was authorized to prohibit the movement of cattle in infected districts without license granted after examination. All owners and employees were ordered to report all cases of disease to him. Cattle infected were to be quarantined or slaughtered, at the agent's discretion. He was also authorized to disinfect premises and the clothing of persons owning infected herds. He was required to certify to the value of all diseased cattle slaughtered, giving the owners such certificates, but where owners willfully withheld information, no such certificates were to be granted. A number of other minor regulations were also provided for his guidance.

In consequence of the above, the agent issued a circular, requesting a cordial co-operation on the part of farmers and other owners of cattle, and dwelt with much emphasis on the danger and loss which would result from the concealment of diseased cases, not only to the individual owners, but to the State at large. He expressed the hope, that if all parties would heartily act in concert with him, the ravages of the disease could be controlled.

Action of the State Authorities.

Under the commission before quoted the agent of the Governor has, (up to November 1,) quarantined twenty-seven herds, including four hundred and eight animals, liable to infection, and distributed in the following counties: Adams, one; Lancaster, four; York, one; Bucks, one; Delaware, four; Montgomery, five, and Chester eleven. Of these herds eight, (one in York, three in Montgomery, and four in Chester,) have since been released from the quarantine and pronounced safe from another outbreak, except from a fresh infection from outside sources.

As soon as the supposed existence of the disease is reported, each animal in the herd is inspected by a veterinary surgeon in the employ of the State, and if the disease is found to exist, is promptly quarantined to prevent its spread to adjoining herds, in order, if possible, to prevent further contagion in the same herd, all diseased animals are appraised and killed.

The history of all the above herds is given in detail, but we have room only for the particulars of a single one given as herd No. 2, containing 20 cows, 2 bulls and 10 calves, which was quarantined June 12. Previous to quarantine four head had died, and after the enforcement of the quarantine, fourteen head were killed. With one possible exception, *all* the animals were affected, and a number of them are now in a condition in which they are worse than useless to the owner. In this case the evidence is strongly in favor of the theory that the owner conveyed the disease to his herd by assisting in the care of another infected dairy. No spread of the disease to adjoining farms; but it is quite probable that the disease was carried from this herd to herd No. 2 in the clothing or on the person of the owner, who administered medicine to both herds. This herd has furnished an illustration of the disease in one of its worst forms, but is now believed to be clear, but not beyond the danger of infecting other stock.

We may find room for another installment of this article, as the most interesting particulars, relative to the name, history, nature and symptoms of the disease, remain to be enumerated. These, when properly understood and carefully watched for, may save the farmers the choicest members of their herds, and much money besides.

OUR TOBACCO CROP.

One of the most important and profitable crops now grown in Pennsylvania is that of tobacco, and every year the area of ground in which it is planted is extended. In 1849, it is stated, the crop of seed leaf in Connecticut, Ohio and Pennsylvania was set down at 6,000 cases, one-third of which was exported and the rest sold at from 14 to 16 cts. per pound to speculators. In 1850 Pennsylvania grew 3,500 cases, the largest crop grown in the state up to that time. Since that time there has been an annual increase, the crop of of 1870 being the largest yet reported.

At the commencement of the tobacco season this year the farmers in the counties of Lancaster, York, Lebanon and Chester were greatly troubled with the cut worm, and in some instances it became necessary to replant two or three times. Then came the dry spell which lasted until nearly the middle of July, and during all this time it was thought by

many that the crop would be a failure, but the rains which came near the close of July had the effect of giving new life to the plants, and at the end of the season the crop was found to be one of the best yet produced.

The good quality of the tobacco here, it is said, is owing to the fact that stable manure is used, instead of guano and other fertilizers, as is the practice in Connecticut and other states. It is estimated that the crop of 1879 in Lancaster, York and Lebanon, will amount to 60,000 cases of 400 pounds each, being one of the largest crops ever grown in these counties. Half of this amount has already been purchased by dealers, principally those in Lancaster, and the other half is fast coming into market. The price for this crop ranges from 15 to 30 cents per pound for tobacco suitable for wrappers; 8 to 10 cents for seconds and about 5 cents for fillers. A large quantity of the tobacco is used in the county for the manufacture of cheap cigars, this being one of the largest revenue districts, so far as this article is concerned, in the country. The entire production this year, according to the estimate made by those most familiar with the business, is over 24,000,000 pounds, which will yield in the neighborhood of $3,000,000.

The farmers engaged in the business plant from 1 to 40 acres, and, in a good season they expect to gather from 1,500 to 2,000 pounds from each acre, which yields them from $200 to $400, according to the quality of the tobacco. The tobacco, when growing, looks like a hardy weed, and not at all a nasty one, but it is subject to many mishaps if not nursed and watched with great care. In the the first place the land must be rich, and if planted in tobacco every year, heavily manured after each crop. The seed is planted early in the spring, generally in forcing beds, and the young plant is set out from the last of May until late in July, in rows 3½ feet apart, the planting from 12 to 18 inches apart. The work of caring for the tobacco commences soon after planting and continues almost without intermission until delivered into the warehouses of the purchaser. The ground must not only be kept clear of weeds and well cultivated, but the worm, the worst enemy of the plant, must be watched for and killed as soon as found. If these pests to the tobacco growers are allowed to remain until they attain any size they would ruin the leaf by eating holes in it and thus destroy it for use as wrappers for cigars. In some places turkeys are used to destroy the worm. The turkey not only seems to have a quick eye for the worm, but a voracious appetite for them, swallowing them as if the ugly green things were of the most dainty character. The tobacco is cut about the last of August, and then hung in buildings to dry. These buildings are thoroughly ventilated, having generally slatted openings that can be closed or opened as the weather is favorable or unfavorable for drying purposes. The tobacco is carefully watched until ready for stripping.

The tobacco barn is now one of the most important features connected with the business. The old style of using wagon sheds, garrets or any old building has nearly passed away. The barns that have been or are now being erected are large and costly. All these barns have cellars, which are indispensable for preparing the leaf for market, for it permits the removal of the tobacco from the laths, when in stripping condition, and its remaining in that condition until the grower has time to prepare for its sale.

The farmers before selling assort the tobacco, so as to have the same size and color, but when the dealer gets it he re-assorts the leaf before packing. Each bundle of a half dozen leaves is shaken up and examined, and if all the leaves are of the same color, size and quality it is allowed to pass. The deficient leaves are taken out and graded afterwards separately. Every pound is thus handled, the lower grades, of course, not with the same care, and each grade is put in a case to itself, a sample of it being kept out, the sales being made by the sample during the summer, before the sweating process has been completed. But if he holds on to his tobacco until the fall or winter, it has to be re-inspected by regular inspectors who are recognized by the trade, and the samples selected by them are used for selling purposes.

In the counties, York, Cumberland, and Perry there are a great many hands employed in the manufacture of cigars, and in Lancaster alone $86,000 worth of cigar stamps were used in September last, which is equivalent to a sale of 15,000,000 cigars. The total amount of revenue collected from the cigar industry of this district for the fiscal year ending June 30th, 1879, was $700,866. show a production of cigars amounting to one hundred and sixteen million eight hundred and eleven thousand.

Mr. F. R. Diffenderffer, of Lancaster, in a recent report to the State Board of Agriculture, states that tobacco can be grown successfully wherever Indian corn will mature.

As a rule, wherever the mean temperature during the month of July is as much as sixty-eight degrees Fahrenheit tobacco can be grown. From this it will be seen that among the Northern states, nearly, if not all New England, central New York, Ohio, southern Michigan, Indiana, Illinois, and part of Iowa and Wisconsin are adapted to its cultivation, perhaps quite as well as Kentucky and Virginia, unless in seasons of unusually early frosts. But even this disadvantage can be overcome by a careful selection of the proper varieties, and acclimatization. Southward, of course, there is no limit, as it is able to bear any degree of heat or humidity the tropics have to offer. Were it not for our more variable climate, there exists no known reason why brands as choice as any grown in Cuba might not be grown in Pennsylvania. The readiness with which Cuban varieties adapt themselves to our more northern climate is another evidence of the remarkable degree of adaptability possessed by this plant. Temperature is the great regulator, and we may set it down as a pretty safe rule, that wherever frosts do not occur between the middle of May and the middle of September, say a period of one hundred and twenty days, tobacco growing can be successfully carried on. He also states that the area of tobacco cultivation is gradually extending to portions of the state where its culture was unknown hitherto. Lycoming and Clinton counties now boast of a very fair acreage, and some of the fields compare very favorable with those of Lancaster and York. Its cultivation has also been commenced in Westmoreland county.

There is still in Lancaster from 7,000 to 8,000 cases of the crop of 1878.—*Namelos in Philadelphia Ledger.*

TRAITS OF ANIMALS.

Dogs, Birds, a Parrot, a Monkey, a Spider and a Bullfrog.

A bullfrog recently caught at West Chester when opened was found to have swallowed a full grown mouse.

A cat was sent by express, carefully boxed, from Dansville to Rochester, a distance of fifty miles. Not many days afterward, tabby came walking into her old home.

When a good housewife of Kirkaldy went for a ham that had hung from the rafters, it had a fair exterior, but was a perfect shell, skin and bones only remaining to show its form, while the rat, after living so sumptuously, had built a nest in the centre, and was easily captured.

A parrot belonging to Capt. Eichelberger, of Baltimore, was always present at family prayers. One morning, when in the garden, a hawk flew down and seized the parrot, when it shrieked: "Oh, Lord, save us! Oh, Lord, save us!" which so frightened the hawk that he dropped his prize.

At Priest's hotel, on the road from Calaveras Grove to the Yosemite, is a dog who one hour before the arrival of the stage goes leisurely down the road to meet it, then bounds back to the poultry yard, catches chickens, bites their heads off, and takes them to the cook. He takes one chicken for each gentleman in the stage, never making a mistake.

An expert in antique coins in Paris is a poodle. The money being placed upon a table the dog being introduced, and after nosing among them will knock off the table all the bad pieces with his paw. After acquiring great fame it was found the whole thing was a trick. His master took care to handle only the bogus coins, and the poodle's decisions were arrived at by faculty of scent.

A wandering "chippy" was picked up by a St. Louis lady and placed in the cage with her canary. In the morning it was released, when the canary mourned as if it had lost its mate. In the evening the chippy returned, and was allowed to nestle on the cage, when the canary struck up one of the liveliest notes and seemed gratified. This was repeated for three days. Then chippy failed to return. The canary drooped and soon died.

A monkey belonging to a gentleman of the south of France often helps the cook. Being given a pair of partridges to pick one day, he seated himself in an open window. A hawk flew down and snatched one of the birds, when the monkey tricked the hawk by secreting himself, and, waiting, soon saw him come for the other, when the monkey caught the thief. Plucking both the hawk and the remaining partridge, he took them to the cook, and the change was not discovered until the game (?) was served at table.

A couple of seals, the property of Major Urch, of Portsmouth, N. H., were kept in a tank, and were as tame as dogs. One of them died recently, and Major Urch concluded to give the other its liberty, it seemed to grieve so much at its loss. He took the tank to the river bank and released the seal, thinking it would swim out to sea. It swam all around the river, but soon returned crying in distress and flapped into its old quarters on the bank, and stubbornly refuses to be ejected.

An enormous eagle in Georgia swept down upon two little girls, aged 3 and 5 years, throwing them to the ground. It buried its talons in the face and arm of the elder and attempted to cary off the child, but was prevented by her struggles. A little brother 7 years of age came to her assistance with a carving knife, slashing the eagle's legs, when it turned upon the boy, who was soon released by the appearance of Joe Betzler a neighbor, upon the scene, who shot and killed the bird. It measured seven feet from tip to tip of wing.

A spider is a glutton, as was evidenced by an experiment recently made. A gentleman arose at daybreak and supplied a spider who had an extensive web, with a fly. This was at 5:50 o'clock, a. m., in September. The spider was then feeding on an earwig. He came for the fly, rolled him up and returned to his first course. At 7 o'clock his earwig had been demolished, and the fly at 8 o'clock. At 9 o'clock he gave it a daddy-long-legs, which he ate at noon. At 1 he greedily seized a blow-fly and during the day he counted 120 green flies, or midgets, all dead and fast in his net.

THE NEW ERA IN FARMING.

A very interesting glimpse of the immense wheat fields of the Northwest, and the processes by which wheat raising will be made unprofitable at the East and in England, is afforded in the following paragraphs from the letter of a traveler who knows well how to tell what he sees:

"Twenty miles due west of Fargo, Dakota, you strike the wonder of America—those colossal wheat farms, which in extent and productiveness, surpass anything in the world. There is nothing to break the view on either hand, but as far as the eye is capable of seeing, stretches a breezy sea of wheat. The sight is one so novel, so wonderful, that you gaze in speechless amazement. The varied tints of the ripening grain, the immense expanse of the prairie, level almost as

the floor, the busy groups of harvesters, and the scattered clusters of houses and barns make up a picture the like of which has never been seen before. Here before you, from an outlook on one of the buildings near the railroad which runs through these fields, are 20,000 acres covered with most luxuriant grain. The bright golden hue of the wheat and barley, the darker tints of the oats, blending with the rich green of the grass, which forms a fringe to the grain fields, entrance the beholder. Harvesting having commenced, the scene is all the more strange and interesting; for round these immense acres of grain drive 115 machines, which cut and bind into bundles, and throw it off on one side with a precision and constancy that seems superhuman. Then scattered about are twenty steam threshers, to which the wagons bear the gathered bundles of wheat, and by which the grain is rapidly separated from the chaff, and poured out, clean and ready for market, through a funnel into the measures set to receive it. The latter are emptied into bags, which in turn are tied up and carried away to the cars, twenty of which are loaded every day. Six hundred men make up the force at work in the harvest field. The overseers are mounted, and watch the proceedings of the gangs they severally superintend. Twelve days sees 20,000 acres of wheat cut, bound up in bundles, and gathered into shocks then threshed, carried to the cars, and borne away to the elevators for storage or shipment.

"This makes a brief story of what is really a most marvelous occurrence; for until these mammoth farms were opened, nothing like this had ever been known in the annals of agriculture. Until these machines, doing their work with such tirelessness and intelligence, had been invented, farming on such a scale was simply impossible. But this is a scene which increasing numbers of visitors from all parts of our country love to look upon every harvest. No one realizes what the possibilities of this land are, until he has seen with his own eyes this which has now been described. Moreover these farms are not yet wholly under cultivation. There are 69,000 acres in one of them, only a small portion of which has been broken up. There are two others of gigantic, though not quite equal area, the whole of which is under the supervision of one man, Mr. Dalrymple. Over one of the farms a telephone has been constructed, so that communication may be held with the different points where the threshers are at work, or where the men and horses are housed."—*New York Mercantile Journal.*

FIGS.

Gathering the Fruit in Italy.

Although indigenous to Asia and Barbary, the fig has been so long and so extensively cultivated in Italy that it may be considered native, on the ground of the Irishman's remark that he had been a native of a certain county for ten years! The season, just at its height, joins hands in October with the *vendemmia*, or vintage; but it begins in August, owing to a curious system of culture. Early in that month as you sit gasping under the noonday sun you hear a wild, eerie strain in minor-key which goes echoing up and down the slopes with intense mournfulness. It is the song of the fig-gatherers, tossing back and forth from hillside to hillside, and from treetop to treetop, as they squirm through the twisted branches and "oil the fruit." The tribe is nomadic, and appears and disappears like the wandering harvesters of France, no one knowing whence they come or whither they go. Late in July the *massaric* are rented to them, they paying a given sum to the proprietor, and taking possession of all the fruit, beginning with the figs and ending with the last waxen clusters of grapes. Rude huts thatched with straw are built by the proprietor in all his orchards, and there the gypsy-like creatures live with their families—stalwart, fierce looking men, swarthy, dark-eyed women and active, lithe young rascals of children. Sometimes they supplement their narrow quarters with a ragged tent- three sticks crosswise and the kettle in the crotch constitute the kitchen. Beds are an unknown luxury. Indeed, they seem never to lay aside their clothing and day and night they patrol the orchards with long guns and a fierce dog, the very sight of which is enough to destroy one's appetite for those particular figs.

The process of forcing the fruit is at once begun, and for many days that wild, sweet song, into whose weird melody the spirit of their homeless life seems to have entered, is heard from tree to tree, in call and response, as far as the faintest adumbration of sound can reach. The methods of forcing the ripening are curious. In one a wad of cotton is dipped in oil and gently rubbed on the lower end of the fig. Fig by fig is thus treated, and eight days thereafter the fruit is ready for market, when it commands a high price as a *primeur*. Another method consists in gathering in the spring the half-formed fruit, which is strung on ropes as we string dried fruits. These ropes or garlands are thrown over the branches of the tree and allowed to decay under the burning sun. Life out of death. An insect is born from this decay which pierces the growing fig and induces the rapid maturity—or, shall we call it, early decay? maturity being only that precious zenith of existence which must inevitably be followed by decline. Leaving such premature sweetness to the epicure, one may well be content to wait the result of nature's unhurried process. The fig, when perfectly ripe, exudes a slow drop of honey-sweet juice at the nether end, which never falls, but hangs there, a standing temptation to bees and men. When fresh picked, at this stage, the fig is indescribably luscious, with a rich flavor entirely lost in the dried fruit.

PLUM PUDDING AT SEA.

The pride and glory of an English Christmas is the plum pudding—supposed to be the lineal descendant of plum porridge. In olden times in England plum pottage was always served with the first course of a Christmas dinner. It was made by boiling beef or mutton with broth thickened with brown bread; when half-boiled, raisins, currants, prunes, cloves, mace and ginger were added, and when the mess had been thoroughly boiled, it was sent to table with the best meats. Sir Roger de Coverly thought there was some hope of a Dissenter when he saw him enjoy his porridge at the hall on Christmas day. Plum-broth figures in Poor Robin's almanac for 1750 among the items of Christmas fare; and Mrs. Frazer, "sole teacher of the art of cookery in Edinburgh, and several years colleague and afterward successor to Mrs. M'Iver," who published a cookery book in 1791, thought it necessary to include plum-pottage among her soups. Brand partook of a tureenful of "luscious plum-porridge" at the table of the royal chaplain in 1801, but that is the latest appearance of this once indispensable dish of which we have any record.

As to plum-pudding, we are thoroughly at fault. Rabisha gives a recipe, in his Whole Body of Cookery Dissected (1675,) for a pudding to be boiled in a basin, which bears a great resemblance to the modern Christmas favorite, but does not include it in his bills of fare for winter, although "a dish of stewed broth, if at Christmas," figures therein. It shared honors with the porridge in Addison's time, however, for the *Tatler* tells us: "No man of the most rigid virtue gives offence by an excess in plum-pudding or plum-porridge, because they are the first parts of the dinner;" but Mrs. Frazer above mentioned is the earliest culinary authority we find describing its concoction.

In the time of the commonwealth plum-pudding and Christmas pie (as mince-pies were then sometimes called) both fell under censure. The enjoying of these dishes seems to have been peculiarly obnoxious to Puritan taste. An old verse reads:

> "All plums the prophet's sons deny,
> And spice broths are too hot;
> Treason's in a December pie,
> And death within the pot."

Or, as another satirical rhymester of the same period has it:

> "The high-shoe lords of Cromwell's making
> Were not for dainties—roasting, baking;
> The chicken food they found most good in
> Was rusty bacon and bag pudding,
> Plum broth was popish, and mince-pie—
> Oh, that was flat idolatry!"

The ship's cook when at sea has evidently exhausted all the resources of his art in the preparation of the great Christmas dish. He always does his part well, and for the sake of those who are eating their Christmas dinner amidst all the discomforts of an ocean passage in winter, let us trust that the toothsome concoction may find its way in safety from the galley to the table.

GLUE AND GLUING.

A Practical Paper of Interest to Professional and Amateur Joiners.

There are few persons who cannot tell a piece of glue when they see it, but how much depends upon it in the practice of the cabinet-maker's and joiner's trades is only known to those who are fully initiated into the mysteries of modern construction.

There is no department in the cabinet factory or joiner's workshop that is so little understood or more slighted than the gluing department—not slighted with the deliberate intention of doing bad work, but from a habitual carelessness in the proper preparation and application of this abused and, at times, useful cement.

The following are some of the requisites and tests of good glue: Glue is adhesive and to a certain extent elastic. It should present a clear appearance when held between the eye and the light; color is of minor importance, so that it is neither spotted nor streaked. When broken it should present a whitish edge where it is compressed in the break; it should not be too brittle, neither should it be too tough, but should break clean. Another test is to allow it to absorb all the water it will, then dry in a cool place. If the piece returns to the size it was in the first instance it is good.

In the preparation or, as the trade term it, "making the glue" (I am not alluding to the manufacture of glue, but the making as understood by the cabinet makers,) what is required is to preserve its elasticity and adhesiveness in the fullest extent, to destroy either of which is to render the glue worthless, and its worthlessness will be in exact proportion to the destruction of either of these properties.

If a cabinet maker be asked why he puts water into his glue, in nine cases out of ten his answer will be, "It is too thick, and will not spread as it should unless you thin it with water." All glue as received from the factory requires the addition of water before it will melt properly, and every addition of water (while the glue is fresh made) will, up to a certain point, increase the adhesiveness and elasticity; and it is the duty of every man who uses glue to find out just where that point lies, as it is possible to melt glue and have it so thick that after it is dry or set it will be so brittle as not to adhere to the wood. Some glues will bear more water than others, but all will bear more water than usually falls to their share, and that too, with a great increase in the quality of the work.

For glue to be properly effective it requires to penetrate the pores of the wood, and the more a body of glue penetrates the wood the more substantial the joint will remain. I have always found that glues that take the longest to dry are to be preferred to those that dry quick, the slow-drying glues being always the strongest, other things being equal.

I have made glue in many different ways, but as yet have not found a way that gives so

good results for general use as the way I was taught when I first went to be apprentice. The method was as follows: Break the glue up small, put into an iron kettle, cover the glue with water and allow it to soak twelve hours; after soaking boil until done, which will be when some is raised upon a stick and allowed to fall back into the kettle it falls without rattling. After the glue is boiled sufficiently pour into an air tight box; leave the cover off until cold, then cover up tight. As glue is required, cut out a portion and melt in the usual way. Expose no more of the made glue to the atmosphere for any length of time than is necessary, as the atmosphere is very destructive to made glues. We used to make a quantity sufficient to last about a week. Never heat made glue in a pot that is subjected to the direct heat of the fire or a lamp. All such methods of heating glue cannot be condemned in terms too severe.

Do not use thick glue for joints or veneering. In all cases work it well into the wood in a similar manner to what painters do with paint. Glue both surfaces of your work, excepting in the case of veneering. Never glue upon hot wood or use hot cauls to veneer with, as the hot wood will absorb all the water in the glue too suddenly, and leave only one very little residue with no nature in it whatever. The following extract is made from Mr. L. D. Gould's "Carpenters' and Builders' Assistant and Wood-Workers' Guide," published in 1874. Under the article "Adhesion of Glue," he says: "Mr. Bevan glued together by the ends two cylinders of dry ash wood, one-fifth of an inch in diameter and about 8 inches long. After they had been glued together twenty-four hours they required a force of 1,260 pounds to separate them, and, as the area of the cylinders was 1.75 inches, it follows that the force of 715 pounds would be required to separate 1 square inch. In remarking further, Mr. Bevan tried the lateral cohesion of some dry Scotch firewood. The force required to separate the wood was 562 pounds to the square inch; consequently, if two pieces of this wood had been well-glued together the wood would have yielded in its substance before the glue. For, in a subsequent experiment, made on solid glue, the cohesive force was found to be 4,000 pounds per square inch, from which it may be inferred that the application of this substance as a cement is susceptible to improvement."

I quite agree with Mr. Bevan about it being susceptible to improvement.

Pattern-makers in foundries usually understand and use their glue to better advantage than cabinet-makers. Pattern-makers require their glue joints to stand the effects of the damp sand, and not to draw out at the joints and leave a mark in the sand, or fall to pieces. They use the same kind of glue as cabinet-makers, but the general run of the cabinet-maker's joints will hardly bear a damp atmosphere, much less being placed in damp sand.

Oil or other like ingredients are not required in the glue to effect the end, but simply water. What a mine of wealth for the dairyman if milk was affected by water the same as glue is! There would be no danger of our receiving our milk too thick if water made it stronger. Why, then, should cabinet-makers be so blind to their best interests and persist in using their glue thick. The only way I can account for it is that they have become habitually careless.

A short time since I required a board five-sixteenths thick for an experiment I was trying with some cement. At the time I required it I was unable to obtain a piece wide enough, so I glued two pieces together. At the time of doing it I had grave apprehensions about it standing the severe ordeal I wished to subject it to. That piece of board (white wood) was covered on one side with stucco and the other side was covered with a composition; the stucco and composition were alternately saturated with water, frozen, thawed out, and then dried before a hot stove. The board was subjected to this process for two weeks, during which time it required to be frequently handled. There were no battens or any cross pieces whatever used, merely the board itself, with the joint square and glued with very thin glue. It went through all that was required, and to-day the joint is as solid as when it was first glued.

In conclusion, let me earnestly request every man who uses glue and who has read my remarks, to give water a fair trial and of the results I have no fear whatever.

BOGUS HAVANA TOBACCO.

The consumers of high priced Havana cigars will be interested in the following exposure of the kind of stuff of which some of them are made. Some time ago a revenue officer accompanied by a reporter of the *U. S. Tobacco Journal*, ascended the rickety stairs of the dilapidated building at No. 5 Gold street, New York. This street is one of the dark narrow down-town thoroughfares, lined with half tumbledown and begrimed buildings, in which the scum of the mercantile community takes up its abode and throws out nets for victims. Arriving at the second floor, the revenue officer and the reporter halted and listened before a door apparently leading to an apartment. Inside there was a noise resembling that produced by the shaking and rustling of tobacco leaves. A strong smell of Valerian root and deer-tongue leaves permeated the building. The officer suddenly caught the knob of the door and tried to open it. It was locked and the noise inside ceased at once. After several unsuccessful efforts, the officer threatened to shatter the door, when, finally, it was unlocked by a seedy and hungry looking individual, whose face and hands seemed to have been steeped in a brown liquid. Without paying any attention to the seemingly frightened individual, a thorough examination of the place was made. The justification for this proceeding rested it the fact that information had been given to the revenue officer that an illicit tobacco factory was situated in the building in question. This proved to have been fallacious, as nothwas found that went to show the correctness of the report. But, however, a discovery was made which will eventually bring to light the band of connivers who palm off California tobacco for Havana to unsuspecting cigar manufacturers.

A large number of cases filled the apartment. Here and there were huge piles of leaf tobacco, all dripping wet, and from which flowed little streams of a nasty brown hue and penetrating smell. A ponderous vat in the rear was filled with the same liquid. Around the place on shelves and screens was strewn a mass of the tobacco to dry. A large tobacco press was also there. Numerous empty Havana bales, with and without the cloth bearing the trademarks of renowned importers, were hanging about the room. So were little heaps of bast with which the carots of Havana tobacco are always tied together. In a corner were several full bales, which upon examination, revealed tobacco pressed in carots exactly similar to the genuine Havana. The tobacco, which had only been recently packed into that shape, was still damp and the corots were tied with the bast in a somewhat bungling manner. The huge piles of tobacco showed, beyond any doubt, that it was of California origin, dark, heavy and mostly short, though some large leaves resembling Pennsylvania were found. The cases were common seed leaf cases. Some of them still contained leaf, but perfectly dry and of lighter color than that in the wet condition in the piles.

From certain facts it could be inferred that one G. Reissman, who does a leaf business and other certain kinds of business at 228 Pearl street, is the seller of this tobacco to various parties, who are repacking this stuff in Havana shape and sell it for the genuine article. The real value of this tobacco is but four or five cents a pound. But as in an artificially colored and flavored state it resembles Havana, the swindling repackers pay from 20 to 30 cents per pound for it, and dispose of it at from 90 cents to $1.10. This last figure has actually been paid by a Toledo cigar manufacturer, who, though, in time discovered the fraud and returned the tobacco.

The individual in charge of the establishment at 5 Gold street preserved utter silence during the examination of the place, notwithstanding several attempts to obtain some clue as to the owner of the tobacco. The landlord of the building also refuses to divulge the name of the lessee of the second floor, but other steps will be taken which very soon will break up this and other establishments of the kind and bring the guilty parties to light.

A CARD IN THE INTEREST OF QUAIL.

The winter, though an unusually severe one for quail, has not been of a character to exterminate them. A large number (thousands) were caught and housed before the snow-falls, and those not caught were generally looked after and fed by the farmers. Reports from a number of sources show that about three-fourths of the birds not housed have been saved, the remainder falling victims chiefly to hawks. Sportsmen very generally have taken the interest of quail in hand, and few of them but have birds enough to turn out to more than replenish what have fallen before their aim through the hunting season. It is to these, and to farmers that have housed quail, that we wish to say a few words, as to the manner of turning them out to secure the best results. The best methods are simple and not new, yet failure to apply them is apt to defeat the end desired—the maximum increase of the stock. When the spring is fairly open, say in April, they should be loosed in pairs, one pair, or not more than two pairs, in a place, at the same time. This is to avoid "packing," or the habit these birds are liable to, when several of them are together and not mating and breeding, either from uneven distribution of the sexes, or from the cocks quarreling. The best place is where there is bog meadow and brush, either or both, or the best available cover. It is very important to place some food where they are turned out, else they will surely "run" or migrate several miles. If these directions are observed, each pair will turn out two broods of about a dozen each, if the season be ordinarily favorable. A full or unevenly mated bevy, for the reasons given, would be liable not to multiply. As hawks are the greatest enemy of the quail, and have no recognized utility, their destruction will be a strong protective measure. But this is easier said than done, as many a hawk hunter has found out. They sometimes can be got within gunshot if on horseback, but as a rule they are shrewder than the crow, who cannot separate the rider from the horse. A certain plan, and one not generally known, is to note where the hawk settles toward evening. It will be either in some isolated tree or a wood. Let him be until dark. Then, with a coal-oil torch, he can readily be discovered, and shot.

Farmers, we regret to say, through the depredations of irresponsible hunters, have come to look upon all sportsmen with enmity, whereas the farmer and the sportsmen are natural allies. The latter will join with the farmer against any depredator, any shooting out of the regular season and against any unlawful methods of destruction. He will join with him in any plan to increase and protect birds. When localities through misfortune become depleted of quail, it is sportsmen or their association that import new stock and put up their guns until the localities recover. Hence, we say that farmers should discriminate. It may not seem easy to do this, but it can be approached to. Let them join together and prosecute all that shoot (and there are enough of them) before the lawful season opens. The penalty is now $10 for each bird so shot or had in possession. Let them exact that a sportsman shall ask

permission before he shoots. All reputable sportsmen would prefer this course, and a farmer can readily satisfy himself as to an applicant's respectability.

The past season has shown that not all the regular shooting, nor all their regular and unseasonable destruction, can so reduce as to prejudice a well-stocked locality. And all experience has shown that certain forms of severe winters are the great exterminators. So, if a few pairs of birds for each farm are housed in advance of winter, the problem of the continuance of the quail stock is solved; and a few pairs of quails will almost invariably increase and multiply more than a few bevies, because of the "packing" or keeping together tendency of bevies, which is simply nature's law to prevent too rapid increase. If the suggestions we make are fairly applied, the stock of this fine game bird can be kept up to any desired point; the farmer can get whatever benefit they are to him as insect destroyers during the insect season, and the hunter can get his sport through the hunting season.—*Easton Express.*

ARE ANTS CIVILIZED?

The October number of the *Quarterly Journal of Science* contains an article on "Our Six-footed Rivals," the ants, which may well cause us to believe that we are not the only rational and civilized beings on this globe.

Let us suppose that we were suddenly informed, on good authority, that there existed a race of beings who lived in domed habitations, aggregated together so as form vast and populous cities, that they exercised jurisdiction over the adjoining territory, laid out regular roads, executed tunnels underneath the beds of rivers, stationed guards at the entrance of their towns, carefully removed any offensive matter, maintained a rural police, organized extensive hunting expeditions, at times even waged war upon neighboring communities, took prisoners and reduced them to a state of slavery; that they not merely stored up provisions with due care but that they kept cattle and even cultivated the soil and gathered in the harvest. We should unquestionably regard these creatures as human beings who had made no small progress in civilization, and should ascribe their actions to reason.

Among the *hymenoptera* the lead is undoubtedly taken by the ants, which, like man, have a brain much more highly developed than that of the neighboring inferior groups. Perhaps the most elevated of the formicide family is the agricultural ant of western Texas. This species is, save man, the only creature which does not depend for its sustenance on the products of the chase or the spontaneous fruits of the earth. A colony of these ants will clear a tract of ground, some four feet in width, around their city, and remove all plants, stone and rubbish. A species of minute grain, resembling rice, is sown therein and the field is carefully tended, kept free from weeds, and guarded against marauding insects. When mature, the crop is reaped and the seeds dried and carried into the nest. If this is done near a large city the latter regard it as an intrusion, and a fierce warfare results, which ends in the total destruction of one or the other side. The queens are treated with great attention and installed in royal apartments.

The ant government is communistic. In a formicary there is no trace of private property; the territory, the buildings, the stores, the booty, exist equally for the benefit of all. The family among them scarcely exists. Rarely is the union of the male and female extended beyond the actual intercourse, all provision for the future young devolving upon the latter alone, the former being speedily killed, as he is no longer of any use. The females are the larger, stronger, and more long lived. The workers and fighters are sexless; to them belong the government of the ant-hill, and they provide for its enlargement, well being, and defense.

Ants are sometimes very stupid in regard to small things, but in many instances they display remarkable sagacity. Mr. Belt, in his "Naturalist in Nicaragua," tells of a column of ants who were crossing a watercourse by a small branch not thicker than a goose quill. They widened this natural bridge to three times its width by a number of ants clinging to it and to each other on each side, over which the column passed four deep, thus effecting a great saving of time. Again, the *eciton legionis*, when attacking the hill of another species, digs mines and passes the pellets of earth from ant to ant until placed at a sufficient distance outside to prevent its rolling back into the hole. Their errors and stupidity are not more conspicuous, however, than among the human beings.

These tiny creatures have a language by which they can impart to each other information of a very definite character, and not merely general signals, such as those of alarm. It has been found that ants fetched by a messenger seem, when they arrive at the spot, to have some knowledge of the task which is awaiting them. Their principal organs of speech are doubtless the antennæ; with these, when seeking to communicate intelligence, they touch each other in a variety of ways. There is a possibility that they may have a language of odors, for the various scents given off by them are easily perceptible. Under the influences of anger it becomes very intense. In battles how, save by scent, can they distinguish friend from foe? After a lapse of several months a former companion will be received kindly into the nest, but a stranger is killed.

More wonderful than their intelligence is their organization. If separate they would be helpless and probably soon become extinct. Mr. Belt observed a marching column of *ecitons* in the primeval forests of Nicaragua. A dense body of ants, four yards wide, moved rapidly in one direction, examining every cranny and fallen leaf. At intervals larger and lighter colored individuals would often stop and run a little backward, apparently giving orders. On the flanks and in advance of the main body, smaller columns would push out, which pursued the cockroaches, grasshoppers and spiders in the neighborhood. A grasshopper seeking to escape would often leap into the midst of the ants. After a few ineffectual jumps, with ants clinging to its body, it would soon be torn to pieces. Spiders and bugs which climbed to the tops of trees were followed and shared a like fate. In Nicaragua the vegetarian ants eat up trees and carry off the leaves to use as a manure, in which grows a minute species of fungus, on which they feed. They evince a mutual sympathy and helpfulness, which can be traced in man alone. Mr. Belt placed a little stone on one to secure it. The next ant that approached ran back in an agitated manner and communicated the intelligence to others. They rushed to the rescue; some bit at the stone, and tried to move it, others seized the prisoner by the legs and pulled. They persevered until they got the captive free.

In Australia they have been known to bury their dead with some degree of formality. The Texan ant removes any offensive matter placed near its city and carries it away. Ants who refuse to work are put to death. Prisoners are brought in by a fellow-citizen, handed over in a very rough manner to the guards, who carry off the offenders into the underground passages. The slave-making propensity and the reliance upon slaves occur in several species, but not to the same degree. The *polyergus rufescens* is absolutely dependent on its slaves, and would rather die than work. *Formica sanguinea*, on the other hand, has much fewer slaves, being itself capable of working as well as fighting. No less variation may be traced in the habits of the cattle-keeping ants. Of the honey-secreting *aphides* and *coccí* that serve them as milch kine, some have large herds, whilst others have none at all, and if they encounter an *aphis* straightway kill and eat it. These *aphides* are extremely destructive to fruits and trees, as they live by sucking the sap. The ants watch them with wonderful care, and defend them from all enemies.

Instances of sagacity and design might be easily multiplied. Careful observation has shown that the ants are evolving as fast as their short terms of life will permit them. They are becoming more wise and more civilized yearly. Each century marks an advance. Who knows but that perhaps in the dim future they may assert rights which human beings shall be bound to respect?—*Scientific American.*

THE PROFIT OF FARMING.

The Maine *Farmer* thinks there is, or ought to be, more profit in farming than people suppose. In a recent issue it says: "The question is repeatedly asked by those interested in farming, as well as by farmers themselves: 'Why cannot our farmers, who own the land they occupy, and in most cases have the same well stocked and well supplied with implements and machines, make farming pay?' And this is the question before the meeting the readers of the *Farmer* being assembled in convention. Why not? is asked again. Throughout England and Scotland farmers pay from eleven dollars to thirty-five dollars an acre rental, yearly, for the land used for ordinary agricultural crops and agricultural purposes; yet they live like princes, have plenty of leisure, keep good teams, read the papers, and make money. Why not make money here where there are no land rents, as such, to pay, and where farmers own the land in fee simple? Throughout Holland, wet land is reclaimed for agricultural purposes at a cost per acre greater than our land is worth, and yet the work of reclaiming goes on, and it is from these reclaimed lands that Holland derives its great wealth and prosperity. The cost of draining the Zuyder Zee, now under contemplation, is estimated at $150 per acre, and yet the land will pay for farming purposes after this great expense is put upon it. Why will not farming pay in Maine, where farmers own the land, and can bring it to a high state of culture at a comparatively small cost? It will.

And yet it is well known that the American farmer is rarely on a level with the English or Scotch farmer, and this is as true of the farmers of the United States as of Maine. As a general rule the English or Scotch farmer does little on his farm, but keeps books and rides round his ground superintending operations. His chief business is tending market and selling his crops. This usually receives his personal attention. All the manual labor, or nearly all, is done by hired hands. If an American farmer were to work in this way he would soon have a friendly call from the Sheriff. There must be more at the bottom than the Maine *Farmer* perceives.

THE SCIENCE OF AGRICULTURE.

The meeting held in New York recently for the purpose of reorganizing the American Agricultural Association elected Hon. John Merryman, of Baltimore county, president. Mr. Merryman was chosen unanimously, at the suggestion of a gentleman who had previously nominated Hon. George B. Loring, of Massachusetts. Mr. Merryman has long been known as one of the most enterprising and progressive farmers in Maryland, as well as an instructive writer on agricultural topics. In accepting the position he took occasion to call attention to the Smithfield and Birmingham (England) Fat Stock Exhibitions, which are held respectively in the first and second weeks in December. The latter has, in addition, a poultry and bird show, conducted under the auspices of the club, a feature which the president recommended should be adopted by the association. He thought that an exhibition combining these features, to be held in New York, say in the second week in December, could be made the greatest show of the kind ever held. The association referred the president's address to the executive committee of the board of directors. Letters

commending the project were received from President Hayes, Gen. Grant, Mr. Jefferson Davis, Gov. Hendricks, Marshall P. Wilder and some fifteen hundred others. The members of the association present at the meeting represented twenty States—all of the New England, most of the Western and many Southern States, including four west of the Mississippi. Among them were some of the largest grain and stock growers of the country. One of the most important subjects under discussion was a proposition for the establishment of a professorship and sub-professorship of verterinary science at the Maryland Agricultural College. The demand for veterinary surgeons is known to be constantly increasing in all parts of the country. It is proposed to apply to Congress for an appropriation of $100,000 to establish these professorships, or raise that sum by appropriations from the various States, and to combine with them a course of clinical instruction, in the event of the establishment of an abattoir in New York. The board of directors consists of twenty-one members, exclusive of the president and vice president. Mr. A. M. Fulford, of Maryland, is a member of the board of directors, and Mr. Ezra Witman is the vice president for New York.

HEIGHT OF STORMS.

Professor Loomis, in his investigations of the phenomena of storms, has ascertained that atmospheric disturbances during storms do not generally extend more than about a mile above the sea-level as they pass over New England. From observation made at the sea-level, as at Portland, simultaneously with observations at the summit of Mount Washington, it is found that during the passage of storms the usual system of circulating winds does not in the majority of instances extend to a height of six thousand feet. The more violent the movement, however, the greater is the height attained by the disturbance. Another fact of interest is that the disturbance on the approach of a storm is felt at the surface sooner than at considerable elevations. Professor Loomis says that, "when, during the progress of an area of low pressure, the system of circulating winds reaches the summit of Mount Washington, the change of wind to the east quarter usually begins at the surface stations eleven hours sooner than it does on the summit of that mountain." It thus appears that only in the lower portions of the atmosphere do the great storm movements occur, and that they are first felt at or near the earth's surface.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The stated meeting of the Lancaster County Agricultural and Horticultural Society was held in their rooms, in City Hall, Monday afternoon, January 5.

The society was called to order by the President.

The reading of the minutes of the previous meeting was on motion dispensed with.

The following members were present:

Calvin Cooper, President, Bird-in-Hand; Henry M. Engle, Marietta; Casper Hiller, Conestoga; Joseph H. Witmer, Paradise; Dr. S. S. Rathvon, city; Johnson Miller, Warwick; John H Landis, Manor; F. R. Diffenderffer, city; J. M. Johnston, city; M. D. Kendig, Creswell; Levi S. Reist, Manheim; Washington L. Hershey, West Hempfield; W. W. Griest, city; C. A. Gast, city, W. H. Brosius, Drumore; J. C. Linville, Salisbury; Peter Hershey, city; Ephraim S. Hoover, Manheim; S. P. Eby, city; A. M. Hostetter, city; C. L. Hunsecker, Manheim; Isaac L. Landis, city; A. B. Groff, West Earl.

New Members.

Edwin B. Brubaker, of Elizabeth twp., Henry Kurtz, of Safe Harbor, and Daniel W. Graybill, of East Hempfield, were nominated and elected to membership.

Reports of Committees.

M. D. Kendig reported that quite a number of farmers in Manor lost hogs by cholera; some forty have been lost so far. The hogs won't eat, become emaciated, tender to the touch, dropping down when handled. No treatment so far practised has proved availing, except in one case, where part recovered. Shoats seem most affected, although full grown hogs are also attacked.

Johnson Miller said wheat looks well. The tobacco is nearly all stripped and much of it sold. Domestic animals are all doing well.

H. M. Engle thought there was little variation from the reports of a month ago. Rainfall for November was 21 14-16 inches, and for December 31 11-16 inches.

The President's Annual Address.

Once more, gentleman, it becomes my duty—under established precedents—to address you at this, the first meeting in the year, now just in its infancy, and which admonishes us, we should renew our grateful acknowledgements to the ruler of the universe for the blessings of the year through which we have passed, for the bountiful crops that are stored in our garners, for the peace and good will that pervades over our land and reminds us that it is to be a beneficent Providence to which we are indebted, and to whom all the gratitude is due.

The year just closed has been one long to be remembered. The unprecedented dronth in the early part of the season was fraught with much anxiety on the part of the husbandman for the success of his crops and the remuneration for the labor and expense incurred in the preparation of the soil, all of which for a time seemed threatened with destruction by the burning rays of the midsummer's sun. The parched earth itself seemed to yearn for the refreshing showers that came at long intervals until the season was more than half over. But what a spontaneous growth followed the delightful rains after harvest! Vegetable matter sprang up, as it were, by magic. Every countenance beamed with gratefulness, and vegetation itself, of every kind, apparently raised its leaves heavenward, as if to tender homage to the Great Ruler above.

The great interest of the farmer at this late date is centred in his tobacco patch. All who had their plants started had little to do but cultivate well, and make room for the rapidly spreading leaves, while others who were not so successful took hold with renewed energy, nursed their sickly plants, and replanted for the fourth, fifth or probably more times the vacancies made by the scorching atmosphere and the depredations of insects, in the hope that they, too, might yet reap some reward for the extra pains taken to get their plants established. Doubtless many of them little dreamed of the rich reward that awaited their labors, and yet how many there are that abhor the use of it, but have become addicted to the detestable habit that they imagine indispensable for their comfort, and continue to roll up a batch of the noxious stuff, and with a coal of fire at one end, and themselves at the other, with distorted countenance, draw and puff (bellows like,) blowing the smoke in a neighbor's face, very much to his or her discomfort, without as much as asking by your leave, or, if not unpleasant, I will indulge in a cigar; thoroughly fumigating the apparel of every one who happens near with the obnoxious odors from a half smoked, and sometimes that which is much worse, an old stump relighted, or with fire extinguished. But, this is not the worst of it. How many do we see with a great chunk (half the size and thickness of a man's hand,) from the pockets to the mouth, and with a twist and pull manage, after considerable exertion, to detach a piece, and then, like ruminating animals, the process of mastication begins. With the discolored saliva leaking from the corners of the mouth, the great stream is spurted on the carpet floor or elsewhere, disfiguring and soiling the clothes and furniture, when the tidy, overworked wife, mother, or sister, must get down upon her knees and scrub her finger ends sore, if she wishes to have her house presentable in anticipation of a visit from some dear friend, and indeed absolutely necessary for the comfort of herself and family. If I have digressed, and drawn too strong a picture, I beg to be excused for expressing my contempt of what to me seems a very filthy, and, indeed, a very expensive and unnecessary habit. But such is the weakness of human nature, that having acquired a habit from having seen a friend indulging therein, we are too apt to fall, without for a moment stopping to weigh in the balance the cost of an unnatural appetite. Might I say to the young man with his chew or cigar in hand, halt? observe and consider before you soil or wound a mother's pride in her son just blooming into manhood.

But to the other side: Having created a market, man will grow that which brings the most (as it is called) of the "filthy lucre," little caring whether the article produced is a necessary commodity for the comfort or happiness of mankind, or a deadly poison to all animal life inhabiting the globe.

The crop of tobacco grown the past season is, beyond doubt, the greatest this county has ever produced. The prices being realized are among the best, if not the very highest, that have ever been paid for the article here. I trust the extravagant returns received from the growth of the weed will not lead you to neglect other less remunerative crops that are so essential for our comfort, and indeed absolutely necessary for our existence and the health of the whole human race. I have many forbodings, that the country of our choice may some day suffer from too great a production of the plant, which, if it continues to increase, will soon be worth more than all other crops combined. The barrens of Virginia and North Carolina bear testimony that we, too, might suffer the penalties, and our now fertile become a barren and unproductive soil. I am well aware that many of you will take exceptions to the little hints thrown out, but trust you will pardon me for expressing my convictions of what might be the result of too great a percentage of your farm being devoted to the growth of a poisonous weed.

The incorporation of our society during the past year should also remind us that the beginning of a new year is a good time to commence some new work. By the reorganization and the election today you assume a new position and standing in the business world; you are recognized as a legal body, and prepared to battle with the world, as it were, for a sphere of usefulness, and enjoy the praise and congratulation of many friends in sympathy, though not members of the society. The good works that some of you have been doing in experimenting with various seeds and fertilizers, and so generously giving the results of your care, labor and expense, is one of the most convincing proofs that the advancement of agriculture and horticulture is the prime object in view. These might be carried on on a larger scale and of greater diversity, a wider field might be opened, and we might acquire such information as would be sure to produce better paying crops.

The press, in their unflagging zeal in gathering the reports of your deliberations, has done much to further the interests of the society. Having scattered to the four winds of the earth full reports of the proceedings, it has created an interest in many sympathetic minds, which will some day bring its reward, and assist in establishing an orgauization from a few itinerent members second to none in the State.

As a corporation, there is a new sea opened on which to float our ship. But not being experienced seamen, we should not sail out of sight of land, lest we lose our reckonings and encounter storms, that older mariners might use to speed them on their way.

Our late exhibition, though not financially a great success, will have its benefit, should you conclude to try it again on a larger scale. As has been said by a member, the experience of a little fall fair would be a great help should the society conclude to branch out upon a regular agricultural exhibition, as are held by some of our adjoining counties. Since passing the gulf on which we floated our new ship, I see many small leaks that could be averted on the next trip, and also many cargoes that might be carried at a less cost. I cannot but advert here to the apathy of some of the members, who never came near us to see whether we sank or swam over the terrible sea of selfishness on which they cast our bark. Others, too, who had repeatedly asked, "Why don't you hold an exhibition?" when we did make an effort stood aloft, as it were, to look down at the modest display as beneath their recognition, and cast a smile of contempt upon it, because they could not gratify some selfish propensity by which they might individually reap some benefit. The insinuation was repeatedly thrown out that we would fail in getting up a creditable display, which had a tendency to deter many who otherwise would have assisted with their contributions and would have filled the building from pit to dome, all of which, I can assure you, was exceedingly discouraging to the management. On the other hand, I wish to congratulate and extend my sincere thanks to those who bravely stood by the helm, notwithstanding the adverse winds we encountered, and assisted in piloting our vessel over the stream that threatened to swallow us forever. With the experience of the past and the knowledge that this county can hold a successful exhibition, together with the proof already established that you will go through with it, there is little doubt in my mind that it would be safe to launch out into open waters, where the foul atmosphere of selfishness could not taint nor pollute this new organization. Upon your assurance to the manufacturing interests of the country that you will hold, annually, exhibitions in the interests of agriculture and industry, I doubt not they will fill all the space you could provide with the new and improved machinery of the day, and themselves lend a lively interest to make it a success. But it is all important to begin early in the season, that any one contemplating making a display can prepare in time. In soliciting exhibits I encountered this difficulty on every side at our late fair. One gentleman alone said he would have filled half an aisle in the market house if he had been notified in time, and many others knew nothing of it until it was too late. The liberal use of printers' ink, judicious advertising, by conspicuous posters, and otherwise, that will attract attention, will do more to spread the news abroad than all the discussions you can contrive at the meetings of the society.

One of the growing features in farm economy is the displacement of middle fences and the adoption

of the soiling system, thereby saving a great annual expense, of both labor and money, and other unnecessary outlay, which with the reclaimed ground brought under cultivation will more than compensate for the labor of feeding the stock in the yard. Picture, if you will, the herd enclosed in a field without shade or water, eagerly seeking some spot to shelter them from the scorching rays of a July or August sun, and then wonder why the fence is so often broken, and herd doing untold mischief to the corn and other crops in adjacent fields. I am in hopes that the day is not far distant when we can dispense with all fences, except what are necessary to enclose the stock yard.

Another growing interest is the encouragement of home attractions. It is now no unusual thing to see around the farmer's house a well kept lawn, handsomely fitted with a few specimens of selected shrubbery, and the beautifully arranged flower beds, that would compare favorably with those of greater magnitude and kept up at a heavy expense, while the former in their simplicity and unique design cannot but command the admiration of all. The refining influences connected therewith has a tendency to bring out the finer feelings of our natures, and kindly associations around the house, that are ever pleasant through our walks of life. Picture, if you will, the tidy mother, having finished the arduous routine of her day's labors, plucking here and there a few choice noisettes and tea roses with an occasional sprig of mignonette and heliotrope, and many others indispensable for her purpose. As she wanders to and fro about the home of her choice, having inhaled the delicious fragrance of the flowers she so tenderly nursed, she goes to the verandah, and in h r easy chair gracefully arranges her boquet, while the plaintive notes from her lips mingle in harmony with the soft, sweet music of her daughter at the organ or piano in the parlor. All intermingle with the songs of the feathered tribe, as from the branches of the graceful birch, or willow, they sing their praises of gratitude for the beauties of nature.

The farmer, too, with the improved machinery of some genius of wit and mechanical skill, finds time in his declining years to seek some shady dell by the brook, where the plaintive notes from his happy home inspires his soul to gratefully acknowledge that his bed has not been cast among thorns.

In conclusion, I desire to express my sincere thanks to you all for the uniform courtesy you have extended me during the four years I have had the pleasure to preside as your chairman, and ask a continuance of the same for my successor.

It now only remains for me to thank you heartily for your kind attention to my remarks, and that my warmest wishes are that your brightest anticipations may be realized in your daily avocations, not only in the several departments of Agricultural or horticultural life, but in the various other duties, which to a greater or less extent are incumbent on us all.

President Cooper's address was applauded at the close.

Questions for Discussion.

E. S. Hoover discussed the question: "Who is the best farmer—he who makes most manure, or he who buys most?" Do we gain most by making or buying manure? That is the question. Can we get full price for the grain we feed our stock? is a question that enters into this discussion. If we can, we save the expense of hauling our grain away. We also save the expense of hauling manure from abroad. Then, too, manure from stall-fed cattle is superior to all other, telling heavily on the crops later on. More cattle are now fed than formerly. Tobacco land requires much manure, and provision must be made to that end. Then, again, manure cannot be had in sufficient quantities. It it pays some one else to make and sell manure, it pays the farmer who needs it to make it also. Good crops of tobacco are grown where rye has been turned down. The farmer can make manure cheaper than he can buy it. Generally, also, he can get full value for his grain by feeding it. He believed the best farmer was he who made the most manure.

Casper Hiller thought Mr. Hoover's remarks were sound, but he believed after all the opposite course was best. He believed no animal should be kept on a farm but those absolutely needed. A hundred acre farm can be profitably farmed with no animals but the horses to work it. All the grain and hay can be sold off a farm, and yet its fertility be fully kept up. All cannot do this, but some farmers can, while the work would be much less. Artificial fertilizers will do it, aided by ploughing under green crops. If we think this matter over we must come to this conclusion.

Joseph F. Witmer believed as Mr. Hiller does, but would be afraid to try his plan. It has been stated there is in most soils enough plant food to last a thousand years, but the difficulty is to make it available. To keep and feed much stock involves much hard labor, and to put the manure on the field is equally laborious. Artificial fertilizers can be put out much more easily.

E. S. Hoover held manure would produce so much greater crops than artificial fertilizers as repaid the trouble of making it. Farms on which the latter is used invariably produce larger crops. Those on which the former are used do not hold out so well.

W. H. Brosius said the commercial fertilizer theories are all very well, and produce largely on paper, but we are constantly deceived in the qualities of the articles we buy. If it pays the manufacturers to make it, it will also pay us to make manure. The man who would keep up the fertility of his farm must make his manure.

M. D. Kendig favored barnyard manure. The best tobacco is from land which is manured with stable manure. If it is best for this crop it will also be best for others. Keep few cattle in summer, and all you can feed in winter.

Johnson Miller was surprised to hear that we can keep up our farms with commercial fertilizers. He agreed with Mr. Kendig.

H. M. Engle thought Mr. Hiller was not so far wrong after all. He didn't care how a farmer got manure, so that he had it to put on his land. Can we not put a productive farm in still better order by using artificial fertilizers along with barnyard manure? Plant food is what we need. Huge piles of manure are not enough. We must have what the plants need. Make all the manure you can, but don't decry commercial fertilizers before thoroughly testing them. We do not know enough about these manures to condemn them.

J. C. Linville said sometimes manure costs more than it is worth. Money is often lost in feeding cattle. If we can make our manure cheaper than we can buy it, then let us do it. He has lately, however, had good results from artificial fertilizers, and begins to like them better. Farmers are much prejudiced on this point. Still he would not like to rely entirely on commercial fertilizers.

Does it Pay to Raise Trees for Fencing?

M. D. Kendig did not think it does, unless on some farms that have bad places which cannot be profitably cultivated. Along the roadsides it will pay us, but average land is too valuable to be put to this use. He gave figures to show what could be realized by planting locusts on the farm along the roadside. On hilly land chestnut might be grown profitably.

John H. Landis said he desired to have the question whether it was not well to encourage the growing of timber by legislative enactment taken up at some future day.

S. P. Eby said growing trees has always been one of his hobbies. Grow trees of all sorts, except the Ailanthus. On many farms there are places fit only to grow trees. Where there is woodland on a farm, dependence should not be put on that supply alone. Don't depend on the birds; plant seeds yourself. Sow acorn and chestnuts. We want trees for beauty, for the feul and for protection.

E. S. Hoover said the question had reference to this county alone. He wanted trees of all kinds planted. The tobacco fever is cutting down our forests; the desire to have new ground on which to plant the weed is becoming a mania, and timber is now cut down which a dozen years ago the owners could not have been induced to lay low.

Levi S. Reist thought the timber question inexhaustible. How shall we protect our trees after they are planted? One of his finest ornamental trees was cut down for a Christmas tree and carried off.

The further discussion of this question was deferred until the next meeting. Several other questions set down for discussion at this meeting were also deferred until next meeting.

Representative to the State Board of Agriculture.

The Secretary read a letter from Secretary Edge, of the State Board of Agriculture, about electing a new member to the State Board in place of H. M. Engle, whose term is about transpiring.

H. M. Engle was unanimously re-elected, and expressed his thanks in an appropriate speech.

New Business.

The Secretary read a letter from a gentleman in Kansas on the comparative cost of raising and keeping cattle in that State and the East.

A. M. Hostetter suggested the appointment of a committee to correspond with tobacco dealers and tobacco growers in regard to fertilizers for tobacco lands, and how the impoverishment of the soil from the culture of the weed can best be prevented.

Election of Officers.

Joseph F. Witmer was nominated for President; Henry M. Engle and Calvin Cooper were nominated as Vice Presidents; for Recording Secretary M. D. Kendig was nominated; for Corresponding Secretary, John H. Landis was nominated; for Treasurer, M. D. Kendig was nominated; for Managers, E. S. Hoover, J. C. Linville, W. H. Brosius, Israel L. Landis and Casper Hiller were nominated, all of whom were elected.

On motion, the thanks of the Society were extended to the retiring president.

Henry M. Engle said the Fruit Growers' Association had its origin in this county, and ought therefore not to be overlooked at its next meeting at Bethlehem on the third Wednesday of this month. Excursion tickets over the Reading road can be procured.

Joseph F. Witmer, the newly elected president, then assumed the chair and addressed the Society, thanking the members for their partiality in selecting him as their presiding officer.

Calvin Cooper suggested that some salary should be attached to the office of Recording Secretary, as his duties are at times onerous.

On motion, the matter was left to the Board of Managers, to report at the next meeting.

A motion was also carried to leave the preparation of questions for discussion to the Board of Managers.

The following question was submitted: By what means and in what way can the growing of forest trees be most encouraged and the timber lands of the State be best protected? Referred to Levi S Reist.

Does the stock have any influence on the graft? Referred to J. Stauffer.

Why does the second crop of clover produce more seed than the first? Referred to Calvin Cooper.

On motion the Society adjourned.

POULTRY ASSOCIATION.

The annual meeting of the Lancaster County Poultry Association was held in City Hall, Monday morning, January 5th, 1880.

The following members were present: Rev. D. C. Tobias, President, Litiz; J. B. Lichty, Secretary; city; T. F. Evans, Treasurer, Litiz; H. H. Tshudy, Litiz; Charles Lippold, city; William Schoenberger, city; John A. Stober, Schoeneck; George A. Geyer, Spring Garden; Joseph F. Witmer, Paradise; Chas. E. Long, city; J. B. Long, city; Harry G. Hirsh, city; F. R. Diffenderffer, city; C. A. Gast, city; Henry Wissler, Columbia; J. M. Johnston, city; T. B. Martin, Litiz; John F. Evans, Litiz; J. H. Miller, Marietta; J. H. Menaugh, Spring Garden; J. H. Habecker, Spring Garden; Ferdinand Schaeffer, city; L. G. Martin, Spring Garden; Martin Bowman, Mount Joy; Addison Flowers, Mount Joy; Morris Bachman, Strasburg; Edward Brackbill, Strasburg; Samuel Engle, Marietta; J. W Brueckhart, Salunga; H. H. Myers, Spring Garden.

The Treasurer and Executive Committee made verbal reports, showing the condition of the treasury to be in a healthy condition, and that the poultry exhibition had been so liberally patronized there was no doubt that all the premiums offered would be paid and a handsome balance left over.

Mr. J. A. Stober, from the committee appointed for the purpose, reported the following officers of the society for the ensuing year:

President—Rev. D. C. Tobias, Litiz.

Vice Presidents—Geo. A. Geyer, Spring Garden, and W. J. Kafroth, West Earl.

Corresponding Secretary—John F. Reed, city.

Recording Secretary—J. B. Lichty, city.

Treasurer—T. F. Evans, Litiz.

Executive Committee—H. H. Tshudy, Litiz; J. A. Stober, Schoeneck; Joseph R. Trissler, city; J. B. Long, city; S. N. Wartel, Strasburg.

The report of the committee was received, and the officers proposed were elected by acclamation.

A discussion ensued as to the propriety of having a sub-committee of city members appointed to act in conjunction with the Executive Committee, and to perform their duties, as alternates during their absence. Without arriving at final action the matter was postponed.

The society adjourned to attend the poultry exhibition in Locher's building.

THE POULTRY EXHIBITION.

The late show of poultry and pet stock in Locher's building, Lancaster city, Pa. was a striking novelty in the domestic history of the county of Lancaster. It was one of the most imposing and meritorious pageantries of the kind ever presented to the gaze of our people. We do not propose to give the details of this first exhibition of the "Lancaster County Poultry Association," for they were amply ventilated by the daily press during the continuance of the show. But as a standing record for the benefit of future exhibitions of the kind, and for the satisfaction of our readers, below will be found the *list of entries*, the awards of the judges and a list of the premiums paid to those who fairly won them. For the same reason we refrain from naming the birds placed on exhibition, nor yet the quality of the stock exhibited, because the examination of the lists aforesaid will be a sufficient reference to those who may desire to make use of them in the future. It is sufficient to say that those whom the association delegated to discharge the various duties assigned them worked with a *will*, and seized old time by the forelock and made the occasion a deserved success. We may learn from this that sleepless vigilance and persevering effort in the proper direction can

achieve a wonderful work when they are intelligently and lovingly operated.

It may "point a moral" that should be heeded by older organizations under similar circumstances, teaching them what to do and how to do it, and above all, to be aforetime and avoid procrastinations.

The Entries.

Sherman Diehl, Beverly, N. J.: 1 pair Silver Seabright Bantams; 1 pair Andalusians.

Haydn H. Tshudy, Litiz: Plymouth Rocks; Brown Leghorn; Colored Dorkings; White Holland Turkeys.

John F. Diehl, Beverly, N. J.; 1 pair B. Red Malay.

A. S. Flowers, Mount Joy; 1 pair White Cochins; 1 pair Buff Cochins.

Jos. R. Trissler, Lancaster; Black Leghorns; Brown Leghorns Andalusians; American Seabrights.

John M. Hagans, Strasburg; 1 pair Red Jacobins pigeons; 1 pair Yellow Jacobins pigeons; 1 pair Black Jacobins pigeons; 1 pair Black Carrier pigeons.

Jacob B. Long, Lancaster; Plymouth Rocks.

Samuel G. Engle, Marietta; 4 pair Black Cochins; 1 coop Black Cochins, six specimens.

J. A. Stoner, Schoeneck; Bronze turkeys; Silver Spangled Hamburgs.

John Cole, Clinton, N. J.; 1 cock and 1 hen, part Cochin; 1 cockerel and 1 pullet, part Cochin; 1 cock and 1 hen Buff Cochin.

Rev. D. C. Tobias, Litiz; Malay Games.

Amos Ringwalt, Lancaster; 1 pair White Leghorns; 1 pair Golden Spangled Hamburgs; 1 pair Silver Penciled Hamburgs.

S. N. Warfel, Strasburg; Light Brahmas.

John C Burrowes, Lancaster; Brown Leghorns.

Jos. Windolph, Marietta; 4 pair Light Brahmas.

Geo. G. Keefer, Chambersburg; Plymouth Rocks.

H. S. Garber, Mount Joy; 3 pairs Partridge Cochins.

M. L. Greider, Rapho; 1 pair W. F. B. Spanish; 2 pair Plymouth Rocks; 1 pair Brown Leghorns.

John Grosh, Landis Valley; 1 pair Pekiu ducks; 2 pair Plymouth Rocks.

Peter C. Hiller, Conestoga; Plymouth Rocks.

H. H. Myers, Spring Garden; 2 pair Partridge Cochins; 1 pair White Leghorns; 1 pair B. B. R. G. Bantams.

Charles Lippold, Lancaster; 1 pair G. D. W. G. Bantams; 1 pair B. B. R. G. Bantams; 1 pair B. B. R. Games; 1 pair Blue Antwerps; 1 pair Silver Antwerps; 1 pair Red Checkered Antwerps; 1 pair White Trumpeters; 1 pair Black Trumpeters; 1 pair White African owls; 1 pair Blue African Owls; 1 pair Blue Baldhead Tumblers, L. F.; 1 pair Inside Tumblers, L. F.; 1 pair Red Tumblers, L. F.; 1 pair White Fantails; 2 German Canaries.

Chas. E. Long, Lancaster; 2 pair Golden D. W. Game Bantams; 2 pair Black B. Red Game Bantams; 1 pair Silver D. W. Game Bantams; 1 pair Golden Seabright Bantams; 1 pair Black African Bantams; 1 pair Red Pyle Game Bantams; 1 breeding pen G. D. W. Game Bantams; 1 breeding pen Light Brahmas; 1 pair Silver D. W. Game Bantam pullets; 1 Black Red Bantam, pullet; 1 Golden D. W. G. Bantam, cockerel; 1 pair Black Leghorns; 1 pair W. Calcutta Fantails, in breeding pen; 1 pair White Calcutta Fantails; 1 pair Black Fantails; 2 pair Yellow Fantails; 2 pair White African Owls; 1 pair Black Fantails; 1 pen, six White Calcutta Fantails.

Chas. E. Long, Jr., Lancaster; 1 pair Silver D. W. Game Bantams; 1 pair Golden Seabright Bantams.

L. R. Rote, Lancaster; 1 coop breeding pen Plymouth Rocks.

L. Rathvon, Lancaster; Light Brahmas.

W. Sherman Edgerly, Lancaster; 1 pair S. S. Hamburgs.

George R. Erisman, Lancaster; 1 pair B. B. Red Games.

J. B. Lichty, Lancaster; 1 coop Light Brahmas; Capon.

Frank R. Howell, Lancaster; 1 pair Silver Dun Antwerps; 1 pair Light Blue Antwerps.

Harry C. Miller, Strasburg; Colored Dorkings.

J. A. Buch & Bro, Litiz; 3 pair Plymouth Rocks; 1 pair G. Seabright Bantams; 2 pair B. Tartar Games; 1 pair White Georgians.

Morris Bachman, Strasburg; Dark Brahmas.

J. W. Bruckhart, Salunga; White Crested Black Polish.

L. G. Martin, Spring Garden; 1 pair White Leghorns.

John E. Schum, Lancaster; 1 pair Blue Swallows; 1 pair Black Swallows; 1 Yellow Winged Turbitts; 1 Yellow Jacobins; 1 pair Blue A. Owls; 1 pair White A. Owls.

Harry G. Hirsh, Lancaster; 2 pair Blue Antwerps; 2 pair Silver; 2 pair Red Checkers; 1 pair Silver Seabrights; 1 pair Ducks; 1 pair Blue Pied Pouters; 1 pair Blue Antwerps.

Jno. L. Metzger, Lancaster; 1 pair Black Spanish; 1 pair W. C. B. Polish; 1 pair W. C. B. Polish; 1 pair White Leghorns; 1 pair Creoles.

Henry Neater, York; 3 pair White Leghorns; Brown Leghorns; Black B. Red Games; Golden Seabright Bantams.

W. A. Myers, York; 2 pair Light Brahmas; 2 pair Dark Brahmas; 2 pair Partridge Cochins; 1 pair Black Cochins.

T. Frank Evans, Litiz; 1 pair Black B. Red Games; 1 pair Black Cochins; 1 pair Langshans; 4 pair Black B. Red Games.

Christian Greider, Rapho; 1 pair Moorheads; 1 pair Magpies; 1 pair Black Trumpeters.

T. D. Martin, Litiz; 1 pair Hong Kong geese; 1 pair Muscovy ducks; 1 pair B. B. R. Games.

C. G. Landis, Lancaster; 1 pair White Pouters; 1 pair Jacobins; 1 pair Yellow Winged Turbitts.

Jos. H. Habecker, Spring Garden; Partridge Cochins; Silver Spangled Hamburgs; Gold Laced Seabright Bantam; Blue Pied Pouters; Yellow Nuns; Black Fantails Crested; Blue Antwerps; Black Jacobin; White Jacobin; Black Trumpeters; Booted Tumblers; Red Magpies; White Calcutta Fantails.

Ferdinand Schaeffer, Lancaster; 1 pair G. S. Hamburgs; 1 pair S. P. Hamburgs; 1 pair Black Barbs; 2 pair Blue Antwerps.

Geo. C. Liller, Lancaster; 1 pair Silver Spangled Polish; 1 pair Black Hamburgs.

I. H. Mayer, M. D., Willow Street; Light Brahmas, ten specimens; 1 pair White Booted Bantams.

J. H. Menaugh, Spring Garden; 2 pair Partridge Cochins; 1 pair S. D. G. Bantams; 1 pair Booted Tumblers.

Chas. Eden, Lancaster; 1 pair Brazilian ducks; 1 pair G. S. Hamburgs.

Wm. A. Schoenberger, Lancaster; 1 pair G. Polands; 1 pair W. C. B. Polish; 1 pair S. S. Bantams; 1 pair G. S. Bantams; 1 pair Blue Antwerps; 1 pair White Fantails.

John F. Reed, Lancaster; 2 pair Plymouth Rocks.

E. C. Brinser, Middletown; 2 coops Plymouth Rocks.

Mrs. Ellen H. Hager, Lancaster; 1 Gray Parrot.

Miss Winnie Breneman, Strasburg; 1 pair Pekin ducks.

Jacob Leep, Lancaster; Dark Brahmas.

George H. Smith, Smithville; Pekin Ducks.

Wm. J. Cooper, Lancaster; 1 pair Plymouth Rocks.

George A. Geyer, Spring Garden; 1 pair Toulouse geese.

Chas. Lippold, Lancaster; 1 pair Mottled Trumpeters; 1 pair White Fantails.

Isaac L. Bauman, Lancaster; 1 pair S. T. Hamburgs; 1 pair Partridge Cochins.

C. G. Landis, Lancaster; 1 pair Yellow Trumpeters.

Elam E. Snyder, Lancaster; 1 pair Irish Games.

Chas. Lippold, Lancaster; 1 pair White Carriers; 1 pair Black Fantails; 1 pair White English Fantails.

Fred. Herman, Erie; 1 pair B. B. Red Games; 1 pair White Leghorns.

Wm. H. Amer, Lancaster; 1 pair Brown Leghorns.

F. R. Diffenderffer, Lancaster; 1 pair Dark Brahmas.

Mrs. Colin Cameron, Brickerville; Embden geese.

J. A. Roberts, Malvern; Light Brahmas.

W. J. Cooper, Lancaster; G. S. Bantams.

George A. Geyer, Spring Garden; White Leghorns; Partridge Cochin; Pekin ducks; Roman ducks; Toulouse geese.

William Henderson, Lancaster; Light Brahmas.

Jno. P. Weise, Lancaster; Plymouth Rock.

THE JUDGES' AWARD OF PREMIUMS.

Chicks and Fowls.

S. N. Warfel, Strasburg, Pa.: First and special premiums for Light Brahma chicks; score—cockerel, 94; pullet, 96. Also, Association's special premium for best pair Light Brahmas.

Dr. ——— Mayer, Willow Street, Pa.: Second and special premiums for Light Brahma chicks; score—cockerel, $95\frac{3}{4}$; pullet, $87\frac{3}{4}$; special premium for heaviest fowl.

Samuel G. Engle, Marietta, Pa.: First and special premiums for Black Cochin chicks; score—cockerel, $97\frac{1}{2}$; pullet, 93.

T. Frank Evans, Litiz, Pa.: First and special premium for Black Breasted Red Game fowls; second for Langshan chicks; and second for Black Cochin chicks; score on latter—cockerel, $93\frac{1}{2}$, pullet, 93.

John Cole, Clinton, N. J.: First premium for Partridge Cochin fowls. Score—Cock, 90; hen, $96\frac{1}{2}$; First for Buff Cochin fowls, and special for best pair of Cochins.

W. A. Myer, York, Pa.: First premium for Dark Brahma fowls; second and special for Dark Brahma Chicks; second for Partridge Cochin fowls. Score—cock, $87\frac{1}{2}$; hen, $95\frac{1}{4}$.

George A. Geyer, Spring Garden, Pa.: Special premium for Pea-comb Partridge Cochin fowls.

Geo. C. Liller, city: First premium for Silver Spangled Polish.

Wm. A. Schoenberger, city: First premium for Golden Spangled Polish fowls; second for Silver Seabright Bantams.

Wm. J. Cooper, city: Special premium for best June hatched chicks (Plymouth Rocks.)

John L. Metzler, city: Second premium for White-crested Black Polish chicks; second for White-crested White Polish chicks.

J. W. Bruckhart, Salunga, Pa.: First and second special premiums for White-crested Black Polish chicks.

Joseph R. Trissler, city: First and second special premiums for Black Leghorn chicks; first and second specials for Brown Leghorn chicks; second and special for American Seabright chicks.

Charles E. Long, city: First, second and special premiums for Black Breasted Red Game Bantams; first and second specials for Black Rose Comb Bantams; first and second specials for Red Pile Game Bantams; first and second specials for Golden Duckwing Game Bantams; first and special for Golden Seabright Bantams; second for Silver Duckwing Game Bantams; second for Black Leghorn chicks, and Association's special premium of $10 for the best coop of six on exhibition. [The contest for this premium was between Mr. Long's Golden Duckwing Bantams and S. N. Warfel's Light Brahmas. The score on the Bantams stood: Cockerel, 94, and five pullets, 94, $91\frac{1}{2}$, $94\frac{1}{2}$, $95\frac{1}{2}$ and 94 respectively; total, $563\frac{1}{2}$. Mr. Warfel's coop scored: cockerel, $93\frac{1}{2}$, two hens, $96\frac{1}{2}$ and 96, respectively; and three pullets $93\frac{3}{4}$, $92\frac{3}{4}$ and $90\frac{1}{2}$, respectively; total, 563. The weight of Mr. Warfel's coop was: Cockerel, 12 pounds 9 ounces; hen, $12\frac{3}{4}$ pounds; hen, $11\frac{1}{4}$ pounds; pullet, 11 pounds; pullet, 10 pounds, 15 ounces; pullet, 8 pounds; total, 66 pounds, 8 ounces.]

Mr. Long's pair of Black Breasted Red Game Bantams, "Tom" and "Jenny," took the special $5 premium offered for the most perfect pair of birds in the exhibition, the united score of the two running up to $194\frac{1}{2}$.

Sherman Diehl Beverly, N. J.: first and special premiums for Andalusian chicks.

M. L. Greider, Mount Joy, Pa.: Second and special premiums for Plymouth Rock chicks; second for Brown Leghorn chicks; second for White-faced Black Spanish chicks.

I. G. Martin, Spring Garden, Pa.: First and special premiums for White Leghorn chicks.

Amos Ringwalt, city: Second and special premiums for White Leghorn chicks.

Ferd. Schaeffer, city: First premium for Golden Spangled Hamburg chicks; second and two specials for Silver Penciled Hamburg chicks.

Hon. J. A. Stoner, Schoeneck, Pa.: First premium for Silver Spangled Hamburg chicks.

Joseph H. Habecker, Spring Garden, Pa.: Second premium for Silver Spangled Hamburg chicks.

J. A. Buch & Bro., Litiz, Pa.: First premium for Black Game chicks; second for Black Game fowls.

Rev. D. C. Tobias, Litiz: First and special premiums for Malay Game chicks.

John E. Diehl, Beverly, N. J.: Second and special premiums for Black Breasted Red Malay Game chicks.

George R. Erisman, city: Second premium for Black Breasted Red Game fowls.

John Grosh, Landis Valley, Pa.: First and second special premiums for White Faced Black Spanish chicks.

George G. Keefer, Chambersburg, Pa.: First and special premiums for Plymouth Rock fowls. [This pair is said to have cost $100.]

A. S. Flowers, Mount Joy, Pa.: Second and special premiums for White Cochin Chicks; second for Buff Cochin chicks.

Jacob B. Long, city: Special premium for best display Plymouth Rock chicks.

Charles Lippold, city: Second premium for Golden Duck Wing Game Bantams.

Pigeons.

Charles Lippold, city: First and special premiums for White Fantails; first for White Trumpeters; first for Black Trumpeters; first for Inside Tumblers; first for Bald-head Tumblers; first for Silver Antwerps; second for Red-checkered Antwerps; second for Blue Antwerps; second for White Owls; second for Blue Owls; second for Red Tumblers; second for Black Carriers, and special for best collection.

John E. Schum, city: First premium for Blue African Owls; first for Blue Swallows; first for Black Swallows; first for Yellow-winged Turbitts; second for Yellow Jacobins.

C. G. Landis, city: First premium for Yellow Trumpeters; first for White Pouters; second for Yellow-winged Turbitts; second for White Jacobins.

Christian Greider, Mt. Joy, Pa.: Second premium for Moorheads.

Ferd. Schaeffer, city: First Premium for Black Barbs.

Frank R. Howell, city: First and special premiums for Blue Antwerps.

Chas. E. Long, city: First and second premiums for Yellow Fantails; first and special for Black Fantails; first for White African Owls; second for White Fantails; and a special premium of $5 for best coop of six in exhibition.

John M. Hagens, Strasburg, Pa.: First premium for Yellow Jacobins; first for Red Jacobins; first for Black Carriers; first for Black Jacobius.

Joseph H. Habecker, Spring Garden, Pa.: First premium for Red Magpies; first for White Jacobins; first for Booted Tumblers; second for Blue Pied Pouters; second for Black Fantails; second for Black Jacobins; second for Black Trumpeters.

Harry G. Hirsh, city: First premium for Blue Pied Pouters; First for Red-checkered Antwerps; second for Silver Antwerps, and special for Blue Antwerps.

Turkeys, Geese and Ducks.

Hon. A. J. Stober, Schoeneck, Pa.: Special premium for large bronze turkeys.

Mrs. Colin Cameron, Brickerville, Pa.: First premium for Embden geese; second for Hong Kong geese.

T. D. Martin, Litiz, Pa: First premium for Hong Kong geese; first for Muscovy ducks.

Miss Winnie Breneman, Strasburg, Pa.: First and special premiums for Pekin ducks.

George A. Geyer Spring Garden, Pa.: First and special premiums for Rouen ducks; second for Pekin ducks.

Miscellaneous.

Charles Lippold, city: First and second premiums for German canaries.

Mrs. Ellen H. Hager, city: First premium for Talking Parrot.

Pigeon Fly.

The carrier pigeon race took place the 7th, having been postponed from the 6th on account of the inclement weather. The prize was a silver cup offered by the association, and to be awarded to the owner of the bird first brought back to the Exhibition.

There were eight entries, by the following named persons: Ferd. Schaeffer, Wm. Schoenberger, Thomas Humphreyville, John E. Schum, J. M. Ruth, Frank R. Howell, Harry G. Hirsh and Charles Lippold. The birds were taken to Mount Joy in the morning by Wm. Schoenberger, but at what hour they were let fly is not known. The first bird brought back to the exhibition was Mr. Schaeffer's, at 1:25 p. m., and the cup was awarded to him. Mr. Schoenberger's bird was brought in second, about five minutes later. The other birds arrived at their cots, but were not returned to the exhibition.

The winning bird is a Blue Antwerp hen, five months old, and was bred by Charles Lippold.

LINNÆAN SOCIETY.

The Linnæan Society held their stated meeting on Saturday, December 27th, 1879, in the comfortable rooms of the Y. M. C. A. Rev. Dr. J. H. Dubbs was in the chair. The monthly dues were paid in and the minutes disposed of. The donations to the museum were only two jars—one containing three gold fish, among which the curious triple-tailed specimen owned by Master C. F. Long, son of Chas. E. Long, and after its death donated by him to the Linnæan; one that was in an aquarium among others of Mr. George Hensel's collection. This manifested a phosphorescent oblong spot, in the dorsal region, near its head, when seen in a dark room, prior to its death. The other was from Mr. Rathvon's aquarium. A bottle of miscellaneous insects collected during the summer.

Additions to the Library.

Proceedings of the Academy of Natural Science of Philadelphia, part II., April and October, 1876; Proceedings of the American and Oriental Section of the Ethnographic Society of France, per Dr. Dubbs; Second Annual Report of the Agricultural Society of Pennsylvania, 1878; U. S. Patent Office Gazette to December 23, 1879; THE LANCASTER FARMER for the month of December, 1879.

Historical Section.

Four envelopes containing fifty historical scraps, per S. S. Rathvon, Ph.D.

Papers Read.

A highly interesting paper was read, No. 533, by Rev. Dr. Dubbs, on Archæology.—(See page 4.) It was listened to with much interest. J. Stauffer read an illustrated paper, No. 534, on gold fish in general, and the triple-tailed specimen in particular. Like specimens have been seen before.

Annual Reports of Officers.

The Recording Secretary read his annual report, and found the dues received to tally with the amounts in the Treasurer's report. Notwithstanding the finance is small, and many of the active members fail to attend the stated meetings, the Curator's full report shows large and valuable additions to the museum and fixtures; forty volumes added to the library, besides pamphlets and serials; twenty-three original papers read, and one thousand five hundred and thirty objects added to the collections. In short, much that deserves encouragement has been performed by the Society, weak as it is, in means and numbers. Those who come short in doing their duty, no doubt are aware of it.

Election of Officers.

It being the time for electing the officers for the ensuing year, on casting the ballot it resulted as follows: President, Rev. J. S. Stahr; Vice Presidents, Rev. Dr. J. H. Dubbs, Prof. T. R. Baker; Recording Secretary, Jacob Stauffer; Assistant Recording Secretary, W. P. Bolton; Corresponding Secretary, M. L. Davis, M. D.; Treasurer, S. S. Rathvon; Librarian, Mrs. L. A. Zell; Curators, Chas. A. Heinitsh, Phar., S. S. Rathvon, Ph. D., W. P. Bolton, Esq.; Microscopist, Dr. M. L. Davis.

AGRICULTURE.

Seasonable Hints.

Among the hints most seasonable on either the garden or the farm, few things are more serviceable than those relating to the sharpening of tools. Too often these things are thought of until the articles are wanted, when much valuable time is lost in putting in order what might as well have been done during the dull winter days. Even the smartest of us do not think enough of these things, and indeed hardly know how much we lose by having dull tools to work with. It has been tolerably accurately computed that the same man can do as much in two days with a sharp scythe, as with one but comparatively dull and with the same expenditure of force, could do in three. And it is just the same in regard to all other tools or implements, whether operated by hand, steam or horse-power. The engineer continually oils the machinery, and a good saw or file is oil to hand implements. We know one who has a great deal of hand hoeing to do by hired labor, and he believes that the continued use of the file on the hoes makes a difference of nearly one-half in the labor. His calculation is that every ten-cent file he buys save him ten dollars in his laborers' bills. Now is the time to look after spades, scythes, hoes, chisels, saws, etc.

A good grindstone and a set of files are among the best of farm investments, especially at this season. It is always nice to be forehanded, to get things well ahead; but the best of all forehandedness is that which prepares in advance a full set of good and well-repaired tools to work with.—*Germantown Telegraph.*

Winter Walks About the Premises.

As the storm-king may soon be expected to visit us to stay for some months, we are inclined to repeat the advice we have hitherto given at this period, when so many farmers in all sections are in the habit of neglecting matters that cost but little time and money about their dwellings and out-buildings, but which impart in themselves great comfort and protection to their families. Among them there is nothing that adds more, not merely to the comfort and convenience, but to the health of the family, than *good walks*. We have known these in many instances to be utterly neglected. They are regarded as good enough when the weather is dry, and when the weather is wet they cannot be made better. And thus year after year the members of the family are left to wade through mud to the cow stables, hog pens, wood or coal shed, to the pump or spring-house, to the place of drying the wash, and so on. Now, the little labor it would cost to make hard dry paths to all these points is not worth mentioning. About every place there are stones, old mortar, bricks, &c., which could be laid down at an excavation of six inches and covered with coal ashes. This would last for a dozen years, and would always be dry in five minutes after a rain. Or, in lieu of this, lay down board walks, which, if taken up in the spring after the weather is settled and carefully piled up, will last from eight to ten years.

Try it. It will save in shoe leather and doctors' bills four times as much as the cost, leaving out of the question the great convenience and comfort enjoyed.

Farm Food.

Where we make one load of manure now we ought to make at least three, says an exchange; These are some of the multitude of ways: The liquid waste is as valuable for manure as the solid portions, and yet on seven-eighths of the farms it is nearly all lost. It can be saved by storing a supply of muck or common loam under the stable where the oxen and cows and horses are to stand, and putting a fresh coating upon the pile often enough to keep it from its foul odors; or is much better still—for few men can be trusted to manage a barn basement—make a shed or pit for the compost, and convey the liquids away from the stable by suitable drains, which should be provided in every decent barn. One hundred loads of saturated earth will be worth to any farmer one hundred and fifty dollars, putting it at the least. Put the absorbents where they will do the most good. One other thing, leaves of the forest are wasted when they should be saved. They make excellent bedding and most excellent manure, and a few days given to transporting them from the woods, where they are not wanted, to the barn, where they are, will pay.

Pierre Lorillard's Farm.

A committee of the Burlington Agricultural Society recently visited the farm of Mr. Lorillard at Jobstown, New Jersey. We give the following from their report:

For the most profitably cultivated crop, the profits of which shall exceed $100 per acre, they award the premium of $10 to D. E. Howatt, farmer for P. Lorillard, for 6¾ acres of carrots, yielding by estimate (after pulling a few) 400 bushels per acre, making 2700 bushels, which, at forty cents per bushel, is $1,080; expense of seed, drilling, hoeing, cultivating, thinning and six per cent. interest on the land rated at $150 per acre, $212; leaving net profit on 6¾ acres, $868.

The attention of the committee was called to a field of thirty-five acres of good corn recently cut and stacked up, and the ground (a sandy loam) was then being seeded with wheat. They estimated the crop at fifty bushels to the acre, making 1750 bushels, which, at fifty cents per bushel, gives $875, the whole cost of ploughing, planting and cultivating, rating the terms at $2.50 per day, laboring men $1.15 per day, boys seventy-five cents, amounting in all to $242, which, taken from the value of the crop, leaves a profit of $633 on thirty five acres, being an average of $18 per acre. They thought the above crop worthy of notice, as showing that farming when properly managed will pay, even in these dull, hard times.

Cuzco Corn from Peru.

A consignment of 1,500 pounds of this corn, which is produced in the province of Cuzco, in Peru, about 400 miles inland from Lima, was recently received in San Francisco, and is described as follows: "The Cuzco corn is as large as a butter bean, has a thin white skin and is all flour or meal. It is as wonderful in quality as it is in size, resembling a well-baked cracker and being two or three times larger than our "large yellow" variety. When simply boiled, the grain breaks into the finest, largest and whitest hominy ever seen, and this without grinding or crushing. It is said by corn experts to be admirably adapted for the manufacture of starch, and also of starch, and very valuable in its green state for fodder. It will also form, as green corn, a new vegetable for the table. The weight of Cuzco corn is forty-three to forty-four pounds to the bushel." The consignment is to be sold for seed at one dollar per pound.

Why Belgian Farming Pays.

The fact that Flemish farming derives such abundant returns from a soil naturally poor is due to the following reasons: The perfection of the work of cultivation, whether performed by the plow or spade; the perfection of shape given to each field, whereby cultivation and drainage are facilitated; the most careful husbanding of all the manures; the great variety of crops grown, especially of industrial plants, which yield large returns and admit of large exportation to distant countries; the abundance of food for cattle; the house feeding of cattle, by which cows give both more milk and more manure; and the system of minute weeding, or the most careful and thoroughly clean culture. The capital in use in farming operations in Flandres amounts to $120 per acre.

HORTICULTURE.

The Best Time to Plant Trees.

There is nothing perhaps on which most of us are more prone to dogmatize than on the subject of tree-planting. If we plant in spring and the tree dies we are very likely to attribute the loss to the season, and decide never to plant in spring again. Or, if we plant in fall and have no success, then we are quite as decided against fall-planting.

There is no doubt but that fall-planting has risks from which the spring is free. Trees which have not been transplanted, but have grown well in the one place for twenty years, have been destroyed by the dry cold winds of winter. Not only evergreens, such as arborvitæs, balsam firs, hemlock spruce, and even Norway spruces, but deciduous trees, as cherries, tulip-trees, oaks, and many others with the best established reputation for hardiness. And then small things besides the risks of those frosty winds to dry up the little sap in them, are usually so much drawn out as to be seriously injured. The one great argument in favor of fall planting is that where the trees escape all these risks it generally grows much stronger and more vigorous in spring than one planted at that time, as the bruised roots seem to heal, and the tree is ready to push out in the spring almost as well as many not transplanted. It saves a year.

But, after all, spring with most people will ever be the favored time. The hot dry summer may come and destroy, just as the cold dry winds of winter may, and thus in some measure equalize the risk, but yet it is at this season that planting will be the most popular.

But there is one thing on which people need cautioning. A large number of persons start to plant as soon as the first bright sun shines through a snow cloud, and before the earth is dry enough to powder about the roots. No matter how fine overhead, the earth should not be wet or frosty at the time of planting.

As a general thing the best time to plant trees in the spring season is just before the buds push, or even after they have started. This implies an active condition of the root, and it generally occurs at a

time when the earth is in the best condition for working in about the roots. As evergreens push later than deciduous trees their removal may be extended long into May.—*Germantown Telegraph.*

The Baby Plant.

No curiosity exhibited in this city for years has attracted such general attention as that wonderful plant at Shannahan's art gallery. Fully 3,000 people have visited the place to look upon this botanical wonder. It is said to be indigenous to Japan. Its technical term has not been ascertained, but it is known, and appropriately so, as the "Baby Plant." It is of the genus lily, sometimes attaining a height of four feet and blossoming semi-annually. The one of which we write is, however, not more than twelve inches in height, with leaves about six inches long and two inches wide. The flower is star-shaped, having five petals of a handsome brown and yellow color. The calyx encircles and protects a tiny little figure that bears an exact resemblance to a nude baby, its little arms and legs outstretched, and the eyes distinctly marked. Hovering over this diminutive form is a small canopy, angel-shaped, having extended arms and wings, and peering closely into the face of the infant. The family of plants of which the "baby" is a member, produced not only the specimen now on exhibition, but also give perfect imitations, if such they can be designated, of different animals, insects and birds. Mrs. Mark Hopkins, of San Francisco, has one of the latter varieties, for which $300 was paid. The plant grows to be about three feet in height when fully matured, and when in full bloom the one now in this city will look like a shipwrecked foundling hospital.—*Portland (Oregon) Standard.*

Unlucky Fruit-Growers.

It is very common to hear people say that it is no use for them to plant fruit trees. They have no luck with them. But in truth luck never did anything of any importance. We don't trust our farm or general garden crops to this person, Luck; but we employ good, careful hands and direct their work by long experience, and the teeming harvest field and luxuriant vegetable garden attest to their wisdom and industry. There is no luck about it, but a careful measuring to the end to be accomplished with the means at hand to gain it. Whenever the same means have been adopted with fruit trees good results have followed. In our own district there are "loads" of people who have wonderful success with certain things that they set their hearts on, and the growing of fruit is among these successes. But these men, we repeat, do not trust to luck. The trees are pruned as they ought to be and manured with what they need; precautions are taken against injury to all from the curculio and borer, and thus industry and not luck meets with its due reward. Try it, as fruit raising and every other crop raising ought to be tried, and see how easy it is to get good fruit and plenty of it, by going thus about it in the right way.—*Germantown Telegraph.*

DOMESTIC ECONOMY.

Timely Hints About Furnaces.

In heating a house with furnace-heat, says the New York *Times*, the great thing is to maintain an equal temperature in the rooms. Now, it is well known that, as the heated air rises and cold air descends, the upper regions are hot, while the lower are cold. In rooms where the furnace-air is stagnant, an absolutely different stratum of air is found. It is better then to give circulation and movement to the air in every way. This cannot, of course, be done by taking cold air from a window, but by occasionally opening doors which lead to the entries of the house. A door swung to and fro sometimes does this. It looks as if it were a very simple thing to do, but few seem to know that, by having the heat to enter freely into lowest stories of the house during the winter nights and allowing the doors below to be wide open, the heat ascending will quickly warm the walls of the house and save a notable amount of fuel for the next cold day. There can be no doubt that although a furnace is one of the necessary evils of our present condition of American civilization, that it is, nevertheless, deleterious to health and the most expensive method of warming which can be found. The great difference between a direct fire and warmed air or indirect heat arises from the manner in which the objects, such as the walls of a house, are warmed. One of the most troublesome effects of furnace-heat is that it abstracts more moisture from the human body than does a direct fire, and the consequence is that at high temperatures evaporation from the body apparently cools the inmate of a furnace-heated room. As to the use of artificial moisture in the room, its advantages are well known, but it is something can never be regulated with accuracy, for, if in excess, such saturated atmosphere tends to become oppressive. Somewhere between 70°, and never higher than 74°, are about the limits of heating a room, though to many the latter temperature is unsupportable outside of Russia. The perfection of a house in winter, where the means will allow it, is to have the halls heated by a furnace, while dining and drawing rooms have still their grate for coal or their fireplace for wood, and where ventilation has not been forgotten.

Wearing Flannel.

Put it on at once. Winter or summer, nothing better can be worn next the skin than a loose, red woolen flannel shirt; "loose," for it has room to move on the skin, thus causing a titillation which draws the blood to the surface and keeps it there; and, when that is the case, no one can take cold; "red," for white flannel fills up, mats together and becomes tight, stiff, heavy and impervious; "woolen," the product of a sheep and not a gentleman of color, not of cotton wool, because that merely absorbs the moisture from the surface while woolen flannel conveys it from the skin and deposits it in drops upon the outside of the shirt, from which the ordinary cotton shirt absorbs it, and, by its nearer exterior air, it is soon dried without injury to the body. Having these properties, red woolen flannel is worn by sailors even in the midsummer of the hottest countries. Wear a thinner material in summer.

Glue for Polished Steel.

The Turks glue diamonds and other jewels to their metal setting with the following mixture: Five or six bits of gum mastic, each of the size of a large pea, are dissolved in as much spirits of wine as will suffice to render it liquid. In another vessel as much isinglass as will make a two ounce phial of strong glue, previously softened in water, should be dissolved in braudy, adding two small bits of gum ammoniac, which must be rubbed until dissolved. These must be mixed by heat, and kept in a phial closely corked. When it is to be used, set the phial in boiling water. This cement perfectly resists moisture, and it is said to be able to unite effectively two surfaces of polished steel.

A Wasteful Interest Paid by Farmers.

There is no disputing the fact thae any farm implement, be it wagon, plow, harrow, reaper, rake, or what not, if left exposed to rain and sun for ten years, will be practically good for nothing. We might say in five years, but if any choose to cavil at five we will say ten. *This is ten per cent. per annum.* At a cost of less than one per cent. these tools can be kept always housed, or under cover of some kind, even if but rough boards, that will shut out sun and rain. Because we do not see the silent, slow but steady waste, we are apt to forget that it is ever going on. It is unnecessary to suggest the "application" of this short sermon. Nine per cent. interest saved is not to be despised, even if better times are at hand.

Fruit in Cellars.

Fruit in cellars is likely to suffer from heat rather that cold. In the slow operation of ripening, heat and carbonic acid are given off. Whenever the temperature approaches 40 degrees, the outer air, if colder, should be let in to reduce it. In the house cellar the accumulation of carbonic acid would be injurious to the health of the family, and it is highly important that this be removed by ventilation. In fruit cellars apart from the house, this is not necessary, as the presence of this gas, so injurious to animal, as it excludes the atmospheric air.

HOUSEHOLD RECIPES.

LEMON CAKE.—One cup of sugar, four eggs, three tablespoonfuls of sweet milk, three tablespoonfuls of melted butter, three tablespoonfuls of baking powder and one cup of flour.

BAKER'S GINGERBREAD.—Three-quarters of a pound of flour, one quart of molasses, one-fourth of a pound of butter, one ounce of saleratus and one ounce of ginger.

BRINE FOR CORN BEEF.—Five gallons of water, one gallon of salt, one-half pound of saltpetre, one and one-half pounds of brown sugar. Boil this mixture fifteen minutes. When cold pour over the beef.

SUET PUDDING.—Make a rather thick batter of one pound of flour, one-half pound of chopped suet, three eggs, one teaspoonful of baking powder, some grated nutmeg, sugar, salt and water; boil in a cloth three hours; serve with sauce.

INDIAN MEAL PANCAKES.—Beat four eggs, add a little milk and form into a paste with ten spoonsful of Indian meal; and nearly a pint of milk and one teaspoonful of baking powder; work smooth and fry, rolling them up with butter, sugar, nutmeg and lemon juice.

APPLE DUMPLINGS, BOILED.—Use russet apples, pare and cut them in half, take out the core and fill the cavities with sugar, apricot-jam and a clove; join the halves and inclose them in suet paste, boil them in cloths for about three-quarters of an hour and serve them with melted butter, plain sauce.

CORNMEAL MUFFINS.—Three cups of cornmeal, one-half cup of sifted wheat flour, three eggs well beaten, two large spoonsful of butter and one teaspoonful of soda dissolved in one pint of buttermilk, and a little salt. Beat these well together, pour into rings and bake a nice brown in the oven.

YEAST DUMPLINGS.—Make a light dough of two pounds of flour, one and one-half ounces of German yeast, a pinch of salt and some milk; let it rise in a warm place. In about an hour the dough will be ready to use; mold them round as for buns, and boil fast for about fifteen minutes in a good deal of water; serve with melted butter plain sauce.

CURRANT PUDDING, PLAIN.—One pound of chopped suet, one pound of flour, three-quarters of a pound of currants, four eggs, a little cinnamon powdered, a pinch of salt, and one teaspoonful of baking powder; beat the eggs, add as much milk as will mix the whole together, tie in a cloth, boil about three hours and serve with melted butter plain in a boat.

DELICATE CAKE.—Take half a pound of butter, one pound of sugar, one pound of flour, half a pint of sweet milk or water, four eggs. Beat the butter and sugar to a cream, then add the beaten eggs, then the milk or water, then the flour; mix thoroughly and put the batter into your pan; sift fine sugar over the top and bake immediately in a moderate oven.

FISH PIE.—Three pounds of fish, one onion, and water enough to boil them both together. When done, pick from the bones, mash the onion with it in the dish it is to be baked in, add pepper and salt, scald one quart of milk, thicken it with one tablespoonful of flour dissolved in cold water, pour over the fish, cover with pieces of butter and cover thick with cracker crumbs; bake until brown.

RELIEF FOR CROUP.—Croup can be cured in one minute, and the remedy is simply alum and sugar. The way to accomplish the deed is to take a knife or grater, and shave off in small particles about a teaspoonful of alum; then mix it with twice its quantity of sugar, to make it palatable, and administer it as quick as possible. Almost instantaneous relief will follow.

DRIED PEACH PUDDING.—Take one pint of dried peaches and scald and stew until done, and have plenty of juice; sweeten with one cup of sugar; make a batter of a small teacupful of buttermilk and one-half teaspoonful of soda, and salt to taste; thicken with flour very stiff, drop this in small lumps in the peaches, which must be boiling; cook about twenty minutes, and serve with cream and sugar or sauce.

WHITE MOUNTAIN CAKE.—Six eggs, six cups of flour, three cups of sugar, two cups of butter, one cup of milk, teaspoonful of soda, nutmeg. Beat the butter and sugar; then add the yolks of the eggs, part of the flour and half of the milk, then the whites of the eggs beaten to a froth, then the rest of the milk with the soda dissolved in it, then flour and spice. Bake in deep pans in a moderate, but not cool, oven.

LEMON PIES.—Beat four eggs very light, add to them, gradually, a quarter of a pound of fine sugar, whisk these together for a few minutes, strewing lightly in one ounce of corn-starch flour; then stir in by degrees three ounces of melted butter; beat the whole well together and stir in the juice and grated yellow rind of one large lemon. Line your pie dish with a good puff paste rolled thin, fill them two-thirds full of the mixture and bake for twenty minutes in a moderate oven.

PENNSYLVANIA SPONGE CAKE.—Seven eggs, one pound of white sugar, three-quarter pounds of flour, one gill of warm water; put the sugar in a vessel and pour the water over it; stand it where it will get warm, not hot; break the eggs in a tin bucket and pour the heated sugar on it, beating with the egg beater as you pour it; keep the bucket containing the sugar and eggs over a vessel of hot water all the time you beat. Continue this for half an hour, then stir in very lightly the flavoring and flour and bake immediately. This makes a large cake and very nice for dessert, with either custard or sauce.

A SUPERIOR OMELETT.—Beat six eggs very light, the whites to a stiff froth, that will stand alone, the yolks to a smooth, thick batter; add to the yolks a small cupful of milk, then the pepper and salt to season properly; lastly, stir in the whites lightly. Have ready in a hot frying pan a good lump of butter. When it hisses pour in your mixture gently, and set over a clear fire. It should cook in eight or ten minutes at most. Do not stir, but contrive as the eggs "set" to slip a broad-bladed knife under the omelett to guard against burning at the bottom. When done, lay a hot dish, bottom upward, on top of the pan, and upset it and bring the browned side up. Eat soon or it will not be so light. A grand dish for breakfast.

PUMPKIN PIE.—Cut the pumpkin in half, put it in a dripping-pan, skin side down (after the seeds are removed), in a slow oven; bake until all the good can be easily scraped from the rind with a spoon; if it is as brown as nicely baked bread, all the better; mash finely, and to one quart add a quarter of a pound of butter while hot; when cool, sweeten to the taste; one pint of milk or cream (if cream be used three eggs will be sufficient, if milk four will be better), beat them separately, stir in the yolks, two teaspoonfuls of cinnamon, one of nutmeg, a wine-glass of wine or brandy; lastly, add the white of the eggs, stirring but little after they are added to the mixture; bake in a quick oven.

LIVE STOCK.

Horseshoeing Again

We revert to this subject, because it is one of great importance, and daily growing more so in consequence of the constantly-increasing number of these most valuable of all animals. A shoer should not only know how to make a shoe and to fasten it upon the hoof so as to look nicely, but he should understand the anatomy of a horse's hoof—and how many do—as well as how much the shoeing must vary to suit the formation of the hoof? This is a knowledge that should be thoroughly possessed. Some hoofs are flat, the shell thin and grows slowly. These should not be pared at all except simply to smooth the surface to receive the shoe evenly. The tip ends of the hoof should be clipped off slightly so as to prevent tripping. There should be next to no rasping of the hoof, in some cases none at all. Once injure a hoof by paring it away, and it may produce lameness for months; indeed we know of cases in which this was not got over for five, six and even twelve months. In such cases, however, we think that the horse should remain carefully shod, but the shoes should not be removed or changed in some cases for two months, and in most cases for from six to seven weeks.

The hoofs of some horses naturally become very brittle and even powdery. In such cases they should be frequently moistened with wet cloths tied around them until brought to a proper condition. Common moss is excellent, and should be kept constantly on hand and moistened when used. Frequent driving in wet weather on muddy roads will have the same effect. In shoeing such horses the utmost care must be taken, so that while giving the nails a secure hold to avoid pricking, as little paring as possible should be done.

As to the *frog*, the shoer who cuts this away farther than merely to trim off the rough edges, should be imprisoned. We have no mercy for the unpardonable ignorance that would destroy this main reliance for the comfortable support of the horse. It acts as a "buffer" to mitigate the solid jarring of the horse's hoofs and legs, and protects, when it is left in its natural condition, those attributes of an animal upon which all its usefulness depends.—*Germantown Telegraph.*

Banish Every Dairy Pauper.

One-third of all the cows kept by dairymen in the United States produce less milk than will pay their keep. These are simply a clog upon the business and are better given away than kept. So says a live stock journal, which very sensibly appeals to dairymen everywhere that they set about weeding out their poor cows, so that they will be able to reap a harvest with a good market and protect themselves against loss with low prices.

The value of a cow, measured for factory cheese production, is determined by pounds of milk she yields, and may be looked at wholly from this standpoint in case nothing less than 6,000 pounds should be satisfactory. The cheese dairymen has then a sample standard of selection—merely the yield of milk—and the sale milk dairyman has the same standard. This is very easily determined with a pair of spring scales hung in the stable, with a book having a name or number for each cow; and by weighing and entering the milk of each cow in the book one day in a week the average of these weighings will give the average yield per day near enough for all practical purposes. Can't dairyman afford to take this small trouble to learn the individual character of his cows when profit or loss depends upon it? A cow that yields only 3,000 pounds at five or six years old should be got rid of as a pauper that lives on your charity and refuses to work. Only heifers with the first calf can be tolerated with so low a yield, and the prospect is not favorable even with the heifer. She should yield 4,000 pounds the first season to offer much encouragement to keep her. A heifer whose udder does not reach back and well up had better be discarded at once. If the udder is round and hangs down in front of her legs like a four-quart pail she is not worth an experiment. It becomes necessary for dairymen to study all the substantial points of a good cow, that they may avoid throwing away food upon an animal not designed to yield milk in paying quantity.

Plain Talk About Stock.

Our calves and yearlings are fed on hay and grain alone, what hay they eat, and about one quart of corn and oatmeal to each calf per day. Our yearlings get from two to three quarts of clear cornmeal according to their size, which usually fattens them sufficient for market in about three months. From experiments that we have made we know that a portion of turnips and beets would be a great help and pay well in the wintering of stall-fed cattle or cows, especially the latter. Farmers who winter a variety of cattle like the above, usually calculate in this section to make their cows eat more or less coarse feed, and if there is any scrimping to be done it usually falls on the poor cows, whose exhausted vitality after a summer's milking, ill-fits them for the course pursued. Cows, in order to winter well, should go into winter quarters in good condition, and when in this shape we have found by repeated trials that they will hold their own if milked to within six weeks of calving, on the following feed and treatment: Free access to salt and water at all times, with cornstalks in the morning; at night one quart of cornmeal and a feed of oats straw, with an occasional feed of hay.

About the first of March discontinue the straw and feed clover or timothy hay in its stead. You may increase the ration of grain now if you wish, but not to too great an extent, lest you induce garget in the udder, to which cows are less subject when kept in uniform flesh and not fed too high. As a remedy use bone-meal or saltpetre, either of which is good, but the former best. We have found it best to commence milking all cows that show much extension of the uddar, especially heifers, for some time before calving, which as a preventive for the above disease is worth many pounds of cure.

Cattle on the Plains.

The season for marketing western cattle is now over, and ranchmen are all busy in preparing winter camps. The past year, notwithstanding the severe drought in Southwest Kansas, Southern Colorado and New Mexico, has been a fairly profitable one with these cattle men. If anything the percentage of good or fat cattle has been greater this year than any previous one in the history of the trade. This, perhaps, was largely due to the infusion of new and pure blood into Western herds the past few years; there being this fall a number of droves of really good, smooth, straight and blocky cattle in from Colorado. Prices, while not high, have ruled fully as good as in 1878, and in some instances better. As a whole ranchmen seem satisfied with their year's work, and the Western cattle interest was never in a more healthy condition than now.

Had to Give a Pig Medicine.

At a recent meeting of an English Farmers' Club Professor McBride spoke of the difficulty of administering medicine to a pig. He said: "To dose a pig, which you are sure to choke if you attempt to make him drink while squealing, halter him as you would for execution and tie the rope end to a stake. He will pull back until the rope is tightly strained. When he has ceased his uproar and begins to reflect approach him, and between the back part of his jaws insert an old shoe from which you have cut the toe leather. This he will at once begin to suck and chew. Through it pour medicine and he will swallow any quantity you please."

POULTRY.

Look After Your Hen Houses.

Now is the time for farmers to look after their hen-houses and yards and put them in the most perfect order. The nest boxes should not only have the nests removed, but they should be thoroughly whitewashed, as well as the entire house, after being cleaned out, fumigated, etc. No one can raise fowls and eggs profitably unless the hens have an inviting place to lay when the season arrives, and a yard to run in where there is, in season, plenty of grass to eat; and when this is scarce, short grass should be cut and fed to them. Scraps of meat of all kinds, potato parings, corn-pudding, whole grains, and once a week or in two weeks they should have some parched or rather burned corn, in place of charcoal; sand, fresh water daily and pounded oyster shells must be regularly supplied. The best success cannot be expected in raising chickens unless the proper way is adopted.

The plan of raising chickens by "incubators" is an old one. We know of no person in this city or vicinity who uses them, although in some sections they are said to be employed successfully. The Delaware county *Record* says that Col. F. M. Etting, a resident of Concord township, is erecting a number of poultry-houses and is making every preparation that may be necessary to insure success in breeding chickens by incubators, and intends at least to give the experiment a thorough trial. But they have often been tried during the last fifty years and not found profitable.

The French perhaps understand the fattening of chickens more thoroughly than any other people. Millions of plump fowls are sent by them to both the English and French markets. When the fowls are fattening they are fed almost entirely on crushed millet or barley, and sometimes a mixture of the two kneaded into a tough dough, to which a little butter or lard is added. They give them to drink fresh or sour milk, slightly sweetened with sugar. Thus fed the fowls are said to acquire a delicate, white and well-flavored meat, and often are ready for market in ten days.

In shipping fowls to purchasers, or to present to friends, care must be taken to have the boxes high enough; also water-cups and feeding troughs, so that they can help themselves as they may need. Cut straw, not too fine, or hay, should be placed in the bottom to rest upon. We have sent fowls hundred of miles in this way, which were in perfect order when landed. They were a present to a friend.—*Germantown Telegraph.*

About Roosters.

In breeding for shape and style, I always look to the hen; a dumpy hen may breed fair pullets, but it is a hundred to one against their throwing reachey cocks; the hen has also most influence on the color of the stags and the breast and body of the pullets. The cock has most influence on the color of the pullet's hackle; that is to say, a cock that was well striped of his chicken feathers will have a tendency to throw heavily striped pullets; do not imagine that I advise breeding from a cock st[illegible]n hackle, when he has got his adult plumage, the brighter he is then the better, but if you want heavily marked pullets, be sure that your cock was striped as a chicken. I have proven this lots of times in black reds, piles and brown reds, but have never had a chance of trying it on duckwings. I first got the idea from noticing two yards of brown reds; one yard had hens with copper-colored hackles, and the other the brass hackles. I noticed that in both yards the majority of cockerels were like the hens in their immature plumage, though they both turned out much alike in the end. I do not put any faith in the adult plumage; it is the chicken plumage I want to see in a cock to breed pullets.

When you have got your birds, let them run together till the hens show signs of laying, and then take away the cock and feed him well—cayenne, meat, bread, all in turns—and let him with the hens for half an hour every morning, you will then have very few clear eggs. One of my cocks is certainly an old one—I don't know quite how old, but not under four years—and, treated like this, there was not a clear egg from fair hens, while other people were complaining of their bad luck. I give no corn, but meal mixed with the stimulant. When the season for breeding is over he must be well physicked and kept low for some time, or he will most likely die of apoplexy. If one is attacked, souse him into a pail of cold water for a minute, and then hold his head under a running tap of cold water, give him a dose of castor oil, and put him in a cool place; this will seldom fail in effecting a cure, if taken in time.—*Fanciers' Journal.*

Egg-Eating by Pullets.

A correspondent of the *American Poultry Yard* writes as follows: As a general thing this habit is introduced by the accidental breaking of an egg. It may be induced by throwing egg-shells from the kitchen into the poultry yard; they should be broken into small pieces before giving them to fowls. Sometimes eggs crack by freezing in cold weather, and thus expose a portion of their contents. Eggs are very delicious morsels to hens. If one fowl acquires this habit all the others in the same flock will soon learn it too, if confined where they see it going on; and they always make a rush at whatever one of their fellows is eating. The habit is one very hard to break; killing the whole flock seems to be a desperate resort, but if the brood is not especially valuable, and the flock a small one, it is really the best possible method saving time and money in the end. The following method may be tried first, however: Let the fowls have free range in summer, or draw them off to a locality at some little distance from nests in winter, and let the nests be so covered as to be quite dark, and prevent the laying hens from seeing the eggs. Hens will not stay in a dark nook to scratch and peck, although they prefer a rather dark place to lay in. Scatter wheat screenings and pounded chandler's scraps, or other attractive food among straw, or some such light stuff, to induce them to spend their time scratching for it. Their visits to the nests will then be only on the legitimate business of laying. If fowls have an unrestricted range, the insects and other attractions of fields will answer the purpose of an artificial scratching-place in summer; but in rough, wet weather, or in winter, the fowls must be employed in-doors to prevent forming bad habits, or to cure them if already formed. All the grain remaining at the scratching-place at night very likely will be devoured by rats and mice. However, by exercising a moderate degree of circulation one will

contrive to throw down just enough in the morning to last till the middle of the afternoon, and the remainder of the day's allowance can be given before dark.

Quarantine New Stock.

The fancier has evils enough to contend with at home, without having disease brought among his stock from outside. Yet there is hardly one of us but has suffered in this way. There is only one remedy, and that is to quarantine all new stock until satisfied that it is perfectly healthy. To preserve human health, the government has made wise provision, and no vessel can land cargo or passengers from a foreign port until a health officer has made a suitable examination; is satisfied that the general health of the community will not suffer, and gives a certificate to that effect. Until this bit of red tape is all right, that other bit—the custom house permit—is not issued. We will not carry our grievance into the halls of government, but, through the widely and wisely circulated pages of the *Journal*, ask brother fanciers to quarantine all stock from another yard, if that other yard be only a hundred rods distant, that no disease gain foothold among those in good health. It is also just to those who ship fowls or other stock. An incipient disease may be lurking among them which, aggravated by a journey, will assume a malignant form much sooner than it will appear among those which remain at home. The shipper, if apprised of the fact, can treat those remaining in time so save much trouble.

It is but a small matter to attend to. Let every breeder of poultry or pigeons have a separate home and yard, away from other stock, and on the arrival of a new purchase, keep them in it a week and watch them closely; then, if they appear all right, allow them to make themselves at home.—*Downs, in Fanciers' Journal.*

Tender Poultry.

The reason poultry killed at home, though young, is not tender as that bought at the market is that the former is generally not killed until wanted, and when cooked is still rigid with death, while that bought at the poulterer's has been killed at least hours, more often days. Poultry ought to be killed several days before being eaten, dressed at once, and, with few a bits of charcoal in it, hung a cool place. If poultry are kept from food and drink at least twelve hours before killing the crop and intestines will be emptied, and any superfluity of secretions exhausted. The flesh will be juicy and the fat firm. If left three days without food or drink, though in good condition previously, the flesh will be dry and tasteless and the fat soft. Never buy an undrawn fowl. The grass from crop and intestines will taint the flesh, even though retained but a short time.—*Fancier's Journal.*

Pedigree of Homers.

A late number of the *Bazaar*, one of the most valuable English papers, contained the following: "We notice in the 'Fanciers' Journal,' that a pedigree list has been opened for the register of celebrated birds, at a charge of about 1s. per bird. The first column gives the bird's number, followed by the name, sex, color, date of hatch, names of parents and particulars of same, and lastly the owner's name. It is somewhat remarkable how the flying fancy has grown in America, and how, as in in everything else there taken up, it has gone ahead. Far beyond us in 'starting the idea,' the Americans have gone beyond us, and carry out the whole system in a much more complete and enthusiastic manner than do the English."—*Fanciers' Journal.*

Don't Give Preventives

Except in the form of ventilation, clean quarters, good food, pure water, and exercise. Too many times diseases exist only in the imagination of the owner. Wait until some symptoms make a disorder apparent; then, if the bird is a valuable one, and there is the least uncertainty as to the cause and remedy, take the case to an homeopathic physician, state those symptoms carefully, remembering that it is the symptoms that indicate to him the remedy, and in all probability he will give the remedy at once.—*Fanciers' Journal.*

LITERARY AND PERSONAL.

RULES, regulations, &c., of the first annual exhibition of the Franklin County Poultry and Pet Stock Association, held January 13, 14, 15, 1880, in Repository Hall, Chambersburg, Pennsylvania. Dr. A. M. Dickie, Doylestown, Pa., Judge; 40 pages, royal, 12 mo. containing premium list, constitution, by-laws, &c. Very liberal.

HOW TO STUDY PHRENOLOGY—With hints on co-operation, observation and study; containing also directions for the formation of phrenological societies, with constitution, by laws, best books to study, &c., including the first principles or outlines of phrenology, by H. S. Drayton, A. M., editor *Phrenological Journal*, S. R. Wells & Co., publishers, 737 Broadway, N. Y., 40 pages, 16 mo., with 42 characteristic illustrations.

AN ADDRESS of the representatives of the religious Society of Friends of Pennsylvania, New Jersey and Delaware, to their fellow citizens, on the use of intoxicating drinks, Philadelphia, to be had at Friends' book store, 304 Arch street; 16 pages octavo, replete with charitable warning and healthful advice; but in this mad, impulsive age, will it be sufficiently heeded to arrest the reckless, downward stream of fallen humanity?

SIXTH QUARTERLY REPORT of the "Pennsylvania Board of Agriculture," from September to November, inclusive, 1879, 48 pages, royal octavo, with two full page colored illustrations of diseased lungs of cattle infected with pleuro-pneumonia. Containing official list, and list of members, tabulated statistics of crops; stock, products, and especially reports on the lung plague: Reports of the veterinary surgeon; abortion among dairy stock; a synopsis of the laws of trespass, as they relate to agriculture, and the proceedings of the Board. Material and letter-press first quality.

THE *Chester Valley Farmer*.—"A fire-side journal." This is a neat monthly folio of four pages, about one column less in length and breadth than the daily *Examiner*, to be published monthly at Coatesville, Chester county, by Joseph C. Kauffman, at 25 cents subscription per annum; 20 copies to one post office, $3.00. A very clean and sharp typographical impression, and on good paper, devoted mainly to agricultural literature. No. 1. Vol. 1. for December, 1879, has been laid on our table, and we are glad to say, is very prepossessing, both in general and in particular, and we welcome it to the great literary *omnibus* of our country, feeling that it always has the capacity of accomodating "one more passenger." We feel assured that Chester county possesses the mind and matter to secure the success of a good agricultural journal, and doubtless its yeomanry will put their shoulders to the wheel and sustain this clever and hopeful beginning.

A NEW HEALTH ALMANAC—We have just received from the publishers the Illustrated Annual of Phrenology and Health Almanac for 1880, 72 octavo pages, price 10 cents. This publication has become a necessity in many well-regulated families, and well it should, for it is filled with reading matter containing valuable information relating to Phrenology, Physiognomy, Health, Hygiene, Diet, etc. The number before us, in addition to the usual astronomical notes, monthly calendars, etc., contains a Monthly Sanitarium, with special hints for each month in the year; the Principles of Phrenology, with illustrations, showing the location of the organs, together with the definition of the mental faculties; Phrenology *vs.* Bumpology sets to right some erroneous opinions; Phrenology in Scotland, as seen in the Edinburgh museum; Tree Ferns, illustrated; The portraits with sketch of Mrs. Lydia F. Fowler and Mrs. Rutherford B. Hayes; How to Teach, illustrated; Fat and Lean People; Instruction in Phrenology; Natural Teachers; Plurality of the Faculties, and a great amount of information in small paragraphs, with notices of recent publications, and a full and complete catalogue of phrenological works published by this house, and all sent by mail for only 10 cents. It is handsomely published, and will have a large circulation. We will say to our readers, send 10 cents in stamps at once to the publishers, S. R. Wells & Co., 737 Broadway, New York.

BUTTERFLIES AND MOTHS in their connection with Agricultural and Horticulture. A paper prepared for the "Pennsylvania Fruit Growers' Society," January, 1879, by Herman Strecker, Reading, Pennsylvania, published by the State, Lane & Hart printers and binders, Harrisburg, Pa.

This is a royal octavo pamphlet of 22 pages, and is prepared by the best practical authority on those specialties in the country, and backed by the most ample material resources. This work will be embodied in the forthcoming volume of the proceedings of the various societies relating to agriculture and kindred objects, of the State of Pennsylvania; but we have been favored with an advance copy in pamphlet form, and we have read it with unabated interest from beginning to end, and regard it as an able and useful synoptic view of the order of insects of which it treats. If, from this outline of the subject, farmers and fruit growers could be induced to commence a systematic study of the insects it comprehends—their histories and habits, their transformations, their periodical appearances and disappearances, their forms under the different stages of their development, and the injuries they sustain from their depredations, the remedies for their extinction would naturally follow, for after all an entomologist can do, this experimental work comes directly within the sphere of the farmers own daily occupations, and immediately affects their own material interests, and therefore ought to elicit their special attention.

THE AMERICAN ENTOMOLOGIST.—An illustrated magazine, devoted to Practical and Popular Entomology, edited by Charles V. Riley, Washington, D. C., and A. S. Fuller, Ridgewood, N. J. Terms of subscription, $2.00 per annum, in advance; published by Max Jaegerhuber, No. 323 Pearl street, New York; Vol. 1. No. 1. new series, for January, 1880. This is a double columned royal octavo of 24 pages, exclusive of embellished, tinted covers. After an interval of nine years this excellent journal has been revived, seemingly under auspices that promise a longer lease of a useful life, than was realized during its publication at St. Louis, Mo. It is so familiar to us—pictures, title-head, letter-press and all—that we rather regret it is not called Vol. III. of the same series as the former publication. Prof. Riley, who is a host within himself, will not only be assisted by Mr. Fuller in his editorial labors, but also by a distinguished list of able entomological writers, scattered over a large portion of the American Union, and presumably by scores of amateur querists, and smaller fry; so that the journal cannot fail of success, and ought to find a welcome reception wherever noxious insects abound. We commend it to the patrons and readers of THE FARMER, because we feel confident that from the experiences of the *twenty-six* who have volunteered to contribute to its columns, sufficient will be developed to cover any case that may come under their observation. Single number 20 cents. Six copies, $10.00; ten copies, $15.00 per annum, in advance.

EIGHTH REPORT of the State Entomologist, on the Noxious and Beneficial insects of the State of Illinois. Being the third annual report by Cyrus Thomas, Ph. D., Springfield, 1879, 212 pages octavo, in paper covers, with ten pages of indexing, botanical and general, and 47 illustrations. This work is gotten up in a creditable manner, both in quality and mechanical execution, and is almost exclusively devoted to the history, the habits, the development, and the classification of the Aphididæ, or plant-louse families and species. It would be safe to say that every tree, shrub and plant has at least *one* species of plant-louse that preys upon it, at some season of the year. Many have more than one, and some species feed indiscriminately upon almost any kind of plant, to the sap of which they can possibly gain access. A distinguishing merit in this work, is the bringing together in one volume, classifying, and succinctly describing so large a number of insect pests, whose histories heretofore have been distributed through many different publications. Therefore, whatever may be thought of it at home, students of practical entomology abroad will thank Professor Thomas for boldly "striking out" on this line of duty. The Aphids are so numerous, so destructive, and so peculiar in their habits, that it is absolutely necessary that more should be known about them in order to counteract their depleting and destroying propensities. They are so very fragile in their structure, that it is almost impossible to make a durable collection of them, and therefore the State or the National goverment ought to publish a separate treatise on them alone, and illustrate it with colored plates of all the known species, and this attempt of the State entomologist of Illinois is a step in the right direction. It is difficult to bring governments—and sometimes also people—to see the utility of these things. But when the "dear people" are threatened with the destruction of the results of their toil, only they begin to cry for entomological aid.

PHRENOLOGY.—The time is passed when people question the utility of Phrenology, and men are now applying its principles to an extent that is hardly appreciated, both in self-culture, and in their dealings with others.

The *Phrenological Journal* of New York is the only periodical devoted to the subject, and it includes with this all that relates to human nature and the improvement of men physically, mentally and morally. In the prospectus for 1880, the publishers make liberal propositions to subscribers. The price has been reduced to two dollars a year, and to each subscriber is offered a phrenological bust. This bust is a model head, made nearly life size, of plaster of Paris, and so labeled as to show the exact location of all the phrenological organs. It is a handsome ornament, well adapted to the centre-table, mantlepiece, library or office. With the aid of this, and the illustrated key which accompanies it, together with the articles published in the *Phrenological Journal* on Practical Phrenology, each person may become quite familiar with the location of the different phrenological organs, and a good judge of human nature. The bust is sent by express, carefully packed, to every subscriber who sends in addition to the subscription price (two dollars) twenty-five cents extra for the boxing and packing; or, No. 2, a smaller size, will be sent by mail, post-paid, on the same terms, to those who have the bust, or prefer the new book premium, will be sent "How to Educate the Feelings and Affections," worth $1.50. Our readers cannot do better than to subscribe at once for the *Phrenological Journal*; it will be found the best possible investment for the money.

Those who desire a more explicit description, together with prospectus of the *Journal*, should send their address on a postal card, or accept the publishers' offer, and send 10 cents in stamps for sample copy of the *Journal* to S. R. Wells & Co., 737 Broadway, New York.

MISCELLANEOUS.

Prof. Tice's Almanac.

The annual issue of Prof. Tice's "*Weather Forecasts and American Almanac for* 1880," is out, and we learn that the first edition of over 20,000 copies was called for within eight days of its publication, and a second larger one put to press. It is fuller and more specific in its weather prognostications for 1880 than formerly, and a variety of subjects of interest, such as plagues and the astronomical relations thereto, heat and sunstrokes, cyclones, facts for foretelling the weather, etc., are discussed. Copy can be obtained by inclosing 20 cents to Thompson, Tice & Lillingston, St. Louis, Mo.

***My annual Catalogue of Vegetable and Flower Seed for* 1880,** rich in engravings, from photographs, of the originals, will be sent FREE to all who apply. My old customers need not write for it. I offer one of the largest collections of vegetable seed ever sent out by any seed house in America, a large portion of which were grown on my six seed farms. *Full directions for cultivation on each package.* All seed *warranted to be both fresh and true to name;* so far, that should it prove otherwise, *I will refill the order gratis.* The original introducer of the Hubbard Squash, Phinney's Melon, Marblehead Cabbages, Mexican Corn, and scores of other vegetables, I invite the patronage of *all who are anxious to have their seed directly from the grower, fresh, true, and of the very best strain.*

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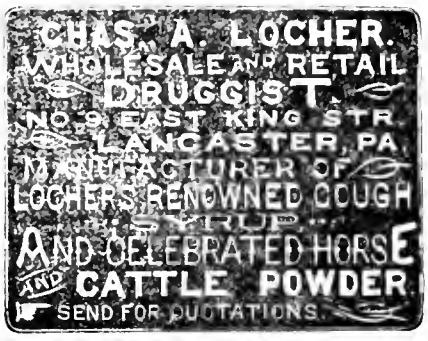

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PENNSYLVANIA RAILROAD SCHEDULE.

Trains LEAVE the Depot in this city, as follows:

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*	2:40 a. m.	4:05 a. m.
Way Passenger†	5:00 a. m.	7:50 a. m.
Niagara Express	10:05 a. m	11:20 a. m.
Hanover Accommodation,.	10:10 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy	11:05 a. m.	12:40 p. m.
No. 2 via Columbia	11:07 a. m.	12:55 p. m.
Sunday Mail	10:50 a. m.	12:40 p. m.
Fast Line*	2:10 p. m	3:25 p. m.
Frederick Accommodation.	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom	5:45 p. m.	7:40 p. m.
Columbia Accommodation..	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express	7:25 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.
Atlantic Express*	12:25 a. m.	3:00 a. m.
Philadelphia Express†	4:10 a. m.	7:00 a. m.
Fast Line*	5:20 a. m.	7.40 a. m.
Harrisburg Express	7:35 a. m.	10:00 a. m.
Columbia Accommodation..	9.10 p. m.	12:0 p. m.
Pacific Express*	1:25 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*	5:20 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.

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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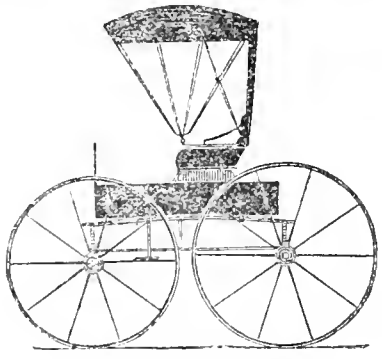

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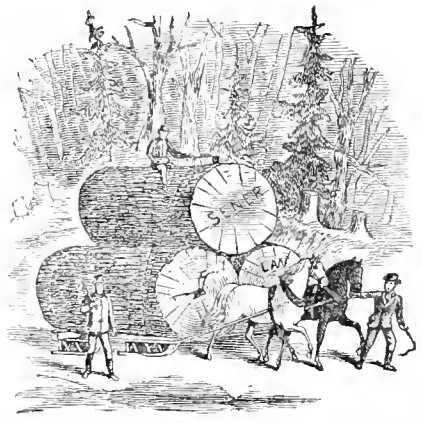

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Nov-1y

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor. LANCASTER, PA., FEBRUARY, 1880. Vol. XII. No. 2.

EDITORIAL.

A NEW INSECTICIDE.

Dr. Herman A. Hagen, Professor of Entomology at Harvard University, Cambridge, Massachusetts, proposes to effect the destruction of all "obnoxious insects"—including phylloxera, potato beetles, cotton worms, grasshoppers and greenhouse pests—by the application of the *yeast fungus*, and has written and published an octavo pamphlet of twelve pages on the subject, citing the observations and experiments of Dr Bail, of Prussia; Mr. Trouvelot, of Medford, Massachusetts; Mr. Siewers, of Newport, Kentucy; Profs. Riley and Comstock, of Washington city Mr. James H. Burns, of Shelter Island, New York; Prof. Horsford, of Cambridge, Massachusetts; Dr. John L. Leconte, of Philadelphia, and others. The following is a resume of the system, and from it our readers may get an idea of its principles and their *modus operandi:*

First. The common house-fly is often killed by a *fungus*, and in epizootics a large number of insects which live in the same locality are killed by the same fungus.

Second. The fungus of the house-fly works as well as yeast for baking and brewing purposes.

Third. The application of yeast on insects produces in them a fungus which becomes fatal to the insects.

Fourth. In the experiments made by Mr. J. H. Burns, all potato beetles sprinkled with diluted yeast died from the eighth to the twelfth day, and the fungus was found in the vessels of the wings."

The term *epizootic* means the same thing among insects, and other subjects of the animal kingdom, that *epidemic* does among human beings, namely: a generally prevailing infection, which is more or less fatal to those attacked by it, whether it is contagious or not. Some of the experiments have been very successful, but others have been unsatisfactory or total failures.

These are contingencies, however, that must be expected in the development of new principles and the applications of new elements as remedies for the destruction of insects. Even if we have all the necessary materials to make a new kind of bread or cake, and know nothing about their proportions, assimilations and affinities, we shall probably fail a dozen times before we learn how to so combine them as to secure a successful result. The remedy seems to be a very simple one, and is not so apt to prove injurious to those who apply it as *Paris green* and other virulent poisons. It is simply beer mash or diluted yeast applied either with a syringe or a sprinkler; and its operation is facilitated by the infected insects communicating it to other insects with which they come in contact. Mr. Burns used "Fleischman's compressed yeast," and the "National Dry Hop Yeast Cake," dissolved in warm water with apparently similar effect. Another important consideration is the cheapness, and at the same time the safeness of the remedy. What to us seems a serious drawback is the long time it requires to kill the insects. If they are not immediately enervated or sickened in eight or ten days they might destroy a whole crop, but even this would be compensated by the *certainty* of the remedy. Our readers must often have observed an epizootic among house-flies and other insects in this locality. We have often witnessed it, and two notable occasions we can distinctly recall. In our rural rambles during the later part of the summer of 1856, (as near as we can recollect,) the grasshoppers, crickets, humblebees, butterflies, moths and caterpillars were infested by fungi, and scores of them could be found at any time and place, adhering by a death grip to fences, weeds, shrubbery, &c., and these were dead, and on opening them they were generally hollow, and contained more or less fungi.

This was so conspicuously the case that it was observed by those who were not particularly noted for minute observations. Some of these grasshoppers were also infested by gordians and other insect parasites, but all had fungi. The following year grasshoppers were fewer in number than they had previously been, or have since been. The other occasion we allude to was in the early part of the summer of 1868, during the advent of the seventeen-year locust (*Cicada 17-decimo,*) and continued to the end of June. Many of these locusts became infested with a peculiar fungus, especially in the cavity of the abdomen, and we think the species was described and named by Dr. Joseph Leidy, of Philadelphia. So far as our recollection goes it was mainly confined to the male sex, but not to them exclusively. In many instances the abdomen of the insects would drop off, whilst vitality was continued for a time in the other portion of the body, which in that condition would frequently take wing and fly from one tree to another. It was through this that the discovery was made here in the city of Lancaster. Many specimens were captured that on examination were found to be minus the abdomen, but they did not survive as long as those that were perfect. On canvassing the ground beneath the trees the abdomens were found and proved to be empty, and the inner walls thickly covered with fungi. Some specimens were found dead that were entire, and these were also infested. We think we published some observations on this subject during the advent of the locusts, and that Prof. Riley also did in the *American Entomologist*, or in one of his annual Missouri reports. Under any circumstances, however, the life of the seventeen-year locust in its adult or *imago* state is a brief one, rarely continuing beyond the 1st of July, except in a few cases, but the infested individuals began to occur at least two weeks before their normal period had ceased, and at that time the fungus was generally considered more as a consequence of their deaths than as the cause of it. But when we reflect that depletion, enervation or death follows, sooner or later, both animal and vegetable subjects of the natural world when infested with fungi we need not be surprised if it should be demonstrated that fungi was the *cause* of their death and decay.

For forty or fifty years very few Morella cherries have been grown in Lancaster county. The trees were weakened and finally died by an infestation known as "*black knot*," which has been demonstrated to be caused by a fungus, and not at all by an insect. We only mention these things here because they seem to have—however remotely—some relation to the subject under consideration. Fungi being fatal to health, and often to the life of anything they infest, if we can contrive by some simple and inexpensive means to communicate "sickness unto death" to all our insect pests, we shall have made a great stride in arresting their increase, and do something towards restoring the equilibrium of nature. But before the happy means is attained, it is very probable there will be many failures, for no matter how simple a remedy is, anything that stops short of, or advances beyond that simplicity, may defeat the desired end. Doubtless many remedies for the destruction of noxious insects have failed for lack of intelligence in their application. A knowledge of the history and character of the subjects we war against, and the elementary principles of the weapons we use against them, are essential to a successful result, and this knowledge can only be obtained through skillful and continued experiment. It therefore behooves those who are interested most in these matters to *continue* patiently and perseveringly. Analagous to the foregoing is the case of the mice of Lancaster city. For the past ten years or more specimens of mice have been captured infested about the head with a white, apparently scrofulous incrustation; from two to a half dozen having been captured during every single year. In some specimens it only occurred on the one side of the head, but in the larger number it covered the whole dorsal portion, destroying the eyes. This may be common among mice everywhere, for aught we know to the contrary, but we have never seen it, or heard of it anywhere save in Lancaster city, and we feel confident that mice so infested could not long survive. Dr. M. L. Davis, of Millersville, exhibited at the meeting of the Linnæan Society, held on the 31st ult., one of these mice, sent to him from Lancaster city. Having examined it, he gave it as his opinion that the animal was infested with *Porrigo favosa*, a well known fungus analogous to the "yeast plant." The theory is that mice contract it by coming in contact with "mouldy" bread, cheese, meats or other substances, and that it is on record that this fungus has been communicated to cats, dogs, and even to children. We may feel very certain that the presence of fungi on any living organism does not increase its vitality, but that it facilitates the premature decay or death of any substance upon which it is permitted to germinate and grow. Of another thing we may be equally certain, namely: that farmers cannot expect to destroy grasshoppers, potato-beetles or any other noxious insects by merely opening the gate and throwing a pill into the enclosure, and then shutting it again and go whistling about some other business with the assurance that they have acted *their* part in the matter. Whatever the remedy may be, as we have before intimated, it must be administered systematically and judgematically, with many repetitions, perhaps, before they can reasonably expect to succeed; and they must also endeavor to find out the reasons of either their success or their failures before they abandon their efforts.

WESTERN NATIONAL FAIR.

The "Western National Fair Association" have decided to hold their first grand exhibition at Bismarck Grove, near Lawrence, Kansas, from the 13th to the 18th of September, 1880. All entries must be made on the 9th, 10th and 11th of September, and all articles for exhibition, excepting live stock, must be in place on the grounds by the 11th. Live stock must be in place on the grounds on or before the 13th. Cash premiums, larger than have ever been offered in the West, will be paid for the best county exhibits of the products of the field, garden and orchard. County exhibits may be made by individuals, agricultural or other organizations. Over thirty thousand dollars in premiums are offered for the best exhibits of the products of the field, garden or orchard, live stock of all kinds, poultry, dairy products, machinery of all kinds, agricultural or farm machinery manufactured in Kansas, textile fabrics of all kinds, floral products, works of art of all kinds, confections, canned or preserved fruits, meats, &c., &c. There will be other magnificent attractions which will be announced in due time. This grand enterprise is to be especially under the auspices of Kansas and

Colorado, with the anticipated participation of the whole "great west" at least, but the invitation is extended to all the world.

Our young sister States of the West have taken time by the forelock, announcing their programme almost with the incoming of the new year, and have already sent their bulletins (see our literary columns,) throughout the country. This is an approximation to our suggestion made during the *centennial exhibition*: namely, that our vast territory should be divided into four, six or eight districts, each holding an annual, biennial, triennial or quadrennial exhibition, instead of only one, and thus draining the whole country of time, money and labor for its support, and concentrating it all in one locality to the disadvantage of all the other places.

These district fairs held at intervals of two, three, four or more years might exist without at all interfering with the successful operations of county fairs, except, perhaps, the single counties in which they are held for the current year, and would also receive a larger patronage, for the reason that the expense of attending would be far less than when held in a single locality.

From the proceedings of our local society it will be seen that at the meeting on the first Monday in March it proposes to discuss the propriety of holding a fair next autumn in Lancaster county, and it will not be too soon to inaugurate a movement of that kind before the opening of spring, and following it up with an energetic effort to make it a success, the State fair at Philadelphia notwithstanding. Lancaster county, in this respect, has been acting an inferior part for many years, and the time has fully arrived when she should act a part commensurate with the position she occupies in her relations agriculturally, mechanically and commercially with other portions of the country. Her tobacco industry alone, either independently or as an auxiliary, is capable of making an imposing display. There are no means by which she can more practically advertise her products than through an energetic and well ordered county exhibition. The result of the poultry show in January last is sufficient to illustrate what can be done when the effort is backed by the energetic *will* of those who are delegated to carry it through. Of course the enterprise ought to be initiated understangingly and intelligently in order to secure a successful termination. An early start, a judiciously elaborated premium list, and a good set of judges appointed long enough in advance to ascertain whether they *can* or *will* serve or not, are very essential to the information and the confidence of the people, and when they are assured of this their is little doubt they will do their part as a whole.

ABOUT GRAHAM BREAD.

If by Graham bread, that made from unbolted flour is meant, it is only right to understand its value as an article of diet, as there are several very general errors concerning it. One is, its superior nutritive properties; the bolted out parts, as ascertained by the chemist, contain important nerve and bone making material—but then it requires the chemist to extract it, for the gastric juice of neither man nor animal will do it, not even in the healthy subject.

Young children and feeble or irritable stomachs will be injured by its use. Those who like it "just for a change," should be advised never to employ soda, saleratus or baking powder in the manufactnre of it, and any alkali, when used for baking bread or cake, pie or pudding, seriously interferes with healthy digestion by neutralizing the gastric fluid.

Bread made from unbolted flour may be of use in scouring radical reformers, but won't do as a substitute for that made in the best manner at home from fine flour; and the addition of soda, molasses, or making a slap-jack of it, to do away with fermentation, are so many degrading processes.

It is only superior to fine flour in one condition; that of habitual constipation, unattended with difficult digestion or soreness of the stomach. The perfectly healthy can make the same use of it they do of grape seeds, cherrystones, apple parings, etc.—*L. D. Z., New Era.*

We never saw or tasted any Graham bread that we did not feel we would get "sick and tired of" in less than a fortnight. There is no use in saying that we would "become used to it in a short time," for we dont think we ever would. But for all that, we are far from condemning that kind of bread; we only say that the old rule—"what's good for the goose is good for the gander," will not apply *per se* to the human family in its relation to Graham bread. From our earliest childhood up to our sixteenth year we had always been fond of pies and doughnuts, even when they were not of the very best quality. About in our sixteenth year it so transpired that during the winter season our boarding "boss" dispensed with dinners, and instead thereof we were served with a lunch, which we daily took along to our place of work. One entire winter this lunch consisted of doughnuts, and the following winter of "half-moon" or "lay-over" pies, which at first awhile we relished. Soon we became indifferent, then we appropriated them stoically, or mechanically, with about the same gratification an ostrich enjoys when it swallows an iron wedge. Then followed periods of aversion, repulsion and disgust, which finally terminated in unqualified hate; and, O how grateful we were at the return of the long days and square dinners of spring and summer again. Now, we have been eating white wheat bread for full sixty years, and we have never seen the period that we could not return to it three or four times a day with the same relish that a fish does to wholesome oxygenated water. Still we are not condemning Graham bread, but we feel morally certain that if we were compelled to use it for a single month we should loath it as intensely as we once did lay-over pies and doughnuts. When cold or stale, Graham bread is about as repulsive to us as cold potpie. Have any of our readers noticed the excretal voidings of a horse or a pig exposed for a time to wind, rain and sun? how it disentegrates and all the substance bleaches out of it, leaving nothing but a residue of dry chaff or bran-like scales remaining. The stomachs of these healthy and strong animals having been powerless in digesting and assimilating it, so we imagine it is with the human stomach in regard to bread made of unbolted flour. But for all that we are far from an indiscriminate condemnation of it. There may be human stomachs that need that kind of aliment. We once dined with a noted vegetarian and Grahamite. Of course, there was no animal food served, but we would not have stowed into our stomach the amount that individual did, (a thin cadaverous man too,) on that occasion, for fifty dollars. We should have feared an expansion of our stomach beyond the power of contraction again. True, he only took two meals a day, but in those two he could "put himself outside of" more than we could in five or six. This does not seem natural. Few animals feed in that fashion, except serpents. As serpents are supposed to be generally healthy, perhaps this system is based on their habits. Doubtless there is much unwholesome bread made out of bolted flour, but so are there also many unwholesome meals cooked out of wholesome material.

CANDLEMAS.

The Day that Brings the Groundhog Out.

To-day is Candlemas Day, or as it is more commonly called Groundhog Day. This festival is very strictly kept by the Roman Catholic Church, there being a procession with many lighted candles, and those required for the service of the ensuing year being also on that occasion consecrated; hence the name Candlemas Day. In Scotland, this day is one of the four-term days appointed for periodical payments of money, interest, taxes, etc., and of entry of premises.

An old document of the time of Henry VIII. concerning the rites and ceremonies of the English Church, speaks thus of the custom of carrying candles: "On Candlemas Daye it shall be declared that the bearinge of candles is done in the memorie of Christie, the spiritual lyghte whom Simeon dyd propheeye ("a light to lighten the Gentiles,) as it is redde in the churche that daye." The candles were supposed by the Romans to have the effect of frightening the devil and all evil spirits away from the persons who carried them, or from the houses in which they were placed.

In Scotland the prognostication is expressed in the following distich:

If Candlemas is fair and clear,
There'll be twa winter in the year.

There is a tradition in most parts of Europe to the effect that a fine Candlemas portends a severe winter. We have the groundhog tradition. If on the 2d of February, on leaving his hole he sees his shadow in the sunshine, he returns, and for six weeks thereafter the weather will be rough; but if he does not see his shadow, owing to a clouded sky, he remains out and the weather will be propitious of an early spring. He saw his shadow today; we shall see.—*Examiner and Express, February, 2.*

Just as often as the second day of February comes, just so often will the papers of the German localities in Pennsylvania have something to say about the "Groundhog." This year we forgot the "old joker" entirely until the very morning of the 2nd., and our contemporaries seemed to have forgotten him too, for he was not "trotted out" until the issue of the Monday evening papers. The little Scotch couplet in the above extract from the *Examiner and Express* may be literally true, for every year we have "twa winters," or parts of winters, beginning the year with a winter month, and ending it with the same.

Of course, so far as the groundhog is personally concerned, the whole story is an allegory—a symbol or figure of speech; for stupid as he may be, he is still too cunning to venture out in the open air on such a cold morning as we had on the 2nd of February the present year. If he was even smart enough to venture out he *would* not have done so, simply because he *could* not. He would have been too torpid to move one foot before another. It is, therefore, said very cautiously and wisely "*If* the groundhog, &c., &c." But, suppose he don't come out at all, what then? The answer would probably be that it would not make the slightest difference in the world whether he comes out or stays in, for the *animus* of the question rests on the *shadow* of the animal, and not on the animal itself, and the meteorological significance would be the same, whether the sun reflected the shadow of a dog, a goat or a guineapig. At any rate, "may his shadow never grow less."

FLORIDA MANUFACTURES.

Of course, manufactures in Florida are still only prospective, but peculiarly situated as the country is geographically, it must possess immense resources that only require time for their development. If we look at the map we will observe that Florida is a peninsula almost surrounded by water, and that it extends farther southward than some of the Bahama Islands, its extreme southern point being on a line with Matamoras in Mexico, and that it must be capable of producing much of the tropical vegetation; and from its peculiar locality, oranges, pineapples and bananas, lemons, citrons and other tropical fruits and vegetation ought to and probably would abound if it had more of the live Yankee in its social and domestic composition. Florida is a very old territory, possessing wholly or in part many buildings erected before it came into the American Union. But all these things have more intimate relation to agriculture and horticulture than to manufactures. Recently, however, it has been "opening up" to manufactures, and possesses material elements and climate for the development of its resources superior to any other State in the *American Union*. A time is fast approaching when its vast material resources will be made available for manufacturing purposes. Some of these material resources together with their abundance and their uses will be found in the following extract from a contemporary journal, for the benefit of those of our

readers who may be contemplating a change of local base:

The Palmetto furnishes the material for paper from bank-note down to the cheapest grade; also, for brooms and brushes, stuffing for mattresses, chairs, carriages, etc., which has no equal, and will come into general use on account of its healthy qualities, and freedom from vermin of every description.

The Castor Bean, which has a prolific growth, will soon become an important article of cultivation. From it can be made the finest quality of tallow or sterine, and soaps of various grades, which in price will more than compete with these articles manufactured from other material. It will soon be manufactured largely. A party are about purchasing 2,000 acres to be devoted exclusively to this interest.

Fibre materials are growing wild in our forests in endless quantities, and will soon become a great resource to the State, as they are being looked after by the manufacturers of the New England States at this time.

We have samples of bank-note and common grades of paper, sterine, soap and samples of fibre, and fibre plants at our office, which we will be happy to show to any one calling.

Florida should supply paper, sterine, soaps and fibre to an immense amount. Yankee enterprise will soon develop them.

Manufactures in connection with agriculture solves the problem of prosperity. Labor is the cornerstone. Give work to your newcomer. Give him the means of a living on his arrival, and then they will flock to the State by the thousands. There is no State in the Union having more natural advantages. They will soon attract the attention of business men, and the fact will come in the near future.

THE STATE BOARD OF AGRICULTURE,

At the annual meeting of the Board of Agriculture, held January 28th, 1880, the following resolution was unanimously adopted:

WHEREAS, The Secretary of the Commonwealth and State Treasurer have notified the Secretary of this Board that certain parties have not complied with the provisions of the act to regulate the manufacture and sale of fertilizers, and

WHEREAS, The proper enforcement of said act is of vital importance to the agricultural interests of the State. Therefore,

Resolved, That the Executive Committee is hereby directed to furnish the Attorney General with the names of the parties, a copy of the notices furnished by the Secretary of the Commonwealth and State Treasurer, and with information that said parties have not deposited in the office of this Board the analysis required by law.

At a subsequent meeting of the Executive Committee a resolution was adopted desiring that proper notice be given the Attorney General.

At the same meeting the following was also unanimously adopted:

Resolved, That the prompt and efficient measures taken by his Excellency, Gov. Hoyt, through his agent, the Secretary of this Board, in so promptly meeting and suppressing the alarming spread of the cattle plague as it appeared in several counties of this State, and with so small an outlay of the funds of the State as compared with the results in other States, deserves and hereby receives the warmest approval of the Board.

In urging the passage of the resolution, Governor Hoyt, after requesting that his name be withdrawn from it, paid a high compliment to the manner in which Secretary Edge has enforced the law, stating that while the results have been much more evident than in other States, the expense was only one-tenth as great.

A resolution was also adopted to appoint commissioners, (whose expenses will be paid from the funds of the Board,) to examine into and report upon the availability of the cleared pine lands of the State for settlement and cultivation.

Oleomargarine vs. Butter.

At the same meeting of the Board, Secretary Edge, exhibited samples of oleomargarine from Philadelphia.

Two samples in particular were the subject of some dispute, a noted Philadelphia dealer having asserted that no member of the Board could tell which was butter and which was "oleo."

The best sample was placed upon the table of a first-class boarding house in Harrisburg, and no one made any remarks or objected to its use as butter, but when at a subsequent meal "cow butter" of good quality was placed upon the table as "oleo" they were able to detect "a decided tallowy taste" in it; and this, too, after they had partaken freely of the genuine "tub butter."

After a careful but cautious examination the Board decided that "If either was genuine butter it was number one, and that if either was oleomargarine, it was number two," showing conclusively that a sell was suspected.

After the adjournment of the Board, known samples of genuine butter were procured and a test instituted, showing conclusively that both samples were "oleo," and that no genuine butter had been sent.

When heated in an iron spoon all the samples of "Philadelphia butter" gave out a decided tallowy smell, which increased with the heat, while genuine butter when so treated gave out its usual fragrant smell.

The universal opinion seemed to be that such samples would not interfere with the sale of *first-class* butter.

COMING EVENTS FOR 1880.

The present new year of 1880 will have 366 days, the extra day being tacked on February. On January 11 there will be a total eclipse of the sun, visible in the western part of North America and the Pacific ocean. Washington's birthday will come on Sunday, February 22; Good Friday, March 26; Easter Monday, March 28; Decoration Day, May 30, will fall on Sunday; the Fourth of July will also come on Sunday; Thanksgiving Day will be Thursday, November 25, and Christmas will fall due on Saturday. There will be a total eclipse of the moon June 22, invisible here; an annular eclipse of the sun, July 7, visible in South America and Southern Atlantic Ocean; December 1, partial eclipse of the sun, visible in Southern Atlantic Ocean; December 16, total eclipse of the moon, invisible here; Sunday, December 31, partial eclipse of the sun, partly visible here. Sun rises eclipsed. Venus will be morning star until July 13; Mars after October 25; Jupiter after March 15, until July 13; Saturn after April 8 until July 9. Venus will be evening star after July 11; Mars, until October 25; Jupiter, until March 15, after July 12; Saturn, until April 8, after July 9.

Essays.

DOMESTIC PROGRESS.*

Give me the plow and the man who can hold it,
A fig for your lord and his soft silken hand;
Let the man who has strength never stoop to abuse it,
Give it back to the giver—the land, boys the land,
There's no bank like the earth to deposit your labor,
The more you deposit the more you shall have;
If there's more than you want you can give to your neighbor,
And your name shall be dear to the true and the brave.

The rise and progress of nations in agriculture, manufactures and commerce present the most astonishing results in our day and generation. To trace the onward and upward progress of some favored spot on earth is ever a theme of great interest to the people of this and every other country whose inhabitants are capable of a due appreciation of the blessings which attend national industry.

*Read before the Agricultural and Horticultural Society by C. L. Hunsecker, Manheim, Pa.

The power and wealth, the comforts and conveniences and enjoyments of a people, depend upon a great variety of causes. Geographical situation, soil and climate; the nature of the productions, the virtue, industry and skill of the inhabitants; freedom of industry, security of property, good system of laws, and judicious administration of the government; genius and public spirit in the citizens to project public improvements and promote intercourse with foreign nations.

When we compare our country with the great nations of Europe and Asia, in wealth and power, in agriculture, commerce and manufactures, we are limited to a period of only several hundred years; but although that we are thus circumscribed within narrow limits, measured in years, we have distanced in the race of progress, and excel to-day some of the oldest and proudest nations of the Old World in the excellence and ingenuity of our mechanical inventions, and the abundance and superiority of our cereal crops.

Americans produced the steamboat, the cotton gin, the telegraph, the reaper and mower, the cast steel plough and many other ingenious and valuable inventions. Look at our internal improvements, our domestic and foreign trade! what strides we have made in a hundred years! Could the pilgrim fathers again start into mortal existence they would be paralyzed with wonder at the greatness of our name, the extent of our domain, and the magnificence of our agriculture, our manufactures and our commerce.

In this as in every other country, agriculture is of paramount importance, inasmuch as it multiplies the fruits of the earth. The skillful handling of the farmer's acres is of vast importance to the government and people of a country.

It is the producer of the materials for manufactures, and furnishes a large proportion of the tonnage of commerce and the food of man. Three-fourths of the people and at least one-half of the fixed capital of the habitable globe are embarked in this great pursuit. In our country we see wide extended fields laden with the products of the husbandman, seeking a market on the seaboard, and shipment to foreign countries, to feed the superabundant population of the Old World, whose crops have failed to supply sufficient food for the people.

The swallow travels, the bee builds and the beaver constructs his habitation as these creatures of instinct traveled and built hundreds of years ago; but man, exercising his reasoning powers, has transformed the best portion of the earth's surface to administer to his wants.

At the time Columbus made his way to America the common people of Europe were in a condition little better than slaves. Their condition, notwithstanding that it has been much improved since, is still vastly inferior to the respectability and standing of the American farmer.

"Here prodigious actions may as well be done
By farmer's issue as by Prince's son."

It is here deep in the valleys of our country that immense crops of wheat and corn are raised, and by the ingenuity and enterprise of commercial men transported to the remotest corners of the world for purposes of traffic and of gain.

Very great changes have taken place within a period of a hundred years in the intercourse of nations, facilitated by the construction of canals, railroads, sailing vessels, steamships, etc., so that our surplus of produce can be carried great distances at low rates to places of consumption, that formerly rotted on the ground for want of an opening to market. To illustrate the great advantages of our internal improvements over the extensive territory of the United States, wheat, the most valuable of our cereal products, will not bear transportation over ordinary earth roads more than three hundred and fifty miles; on our railroads it will bear transportation three thousand five hundred miles. The tonnage

moved in 1870 equalled 150,000,000 tons, now probably much greater, while in 1851 it did not exceed 5,000,000 tons. The wheat grown within five hundred miles of tide water is mostly consumed on the spot; the wheat for export comes from the west. The volume of wheat of to-day is more than threefold greater than thirty years ago, but the increase of that of it grown beyond the Mississippi is greater than the entire crop of 1849, and five per cent. only was then produced west of the father of waters.

How many states and clustering towns and monuments of fame and scenes of glorious deeds have rewarded the industry of our people in the last fifty years. There is New York with a population of a million of human beings; what an amount of produce it takes daily to feed this population, including its dogs and cats and horses!

Hunger is a god to whom all men render homage; life is a strife for bread. The demand for food is constant and unremitting; but the agricultural population is ever equal to the emergency; they dig and delve in mother earth, spread to the west, and increase the acreage of production to meet the demand of the great metropolis. To such an extent have the cities increased their population, that the rural districts needed greater facilities to move the produce from the producer to the consummer; hence the railroad and the steamer lend a helping hand to all interested. To the farmer to get his products to a distant market, but for the railroad and steamship, the western crops would not be raised, because the old modes of conveyance by wagon and sailing vessels could not have transported one-tenth of the quantity of the breadstuffs needed by England, France and other countries.

The wonderful improvement in the means of travel and the transportation of goods in the last one hundred years is truly marvelous. When Gov. Dinwiddie sent Washington, in 1753, with a message to the French commandant at the fort on the Ohio, it took him going and returning, although he made it as quick as possible, more than one month. When California was opened to the first settlers from the Eastern States, they took passage in whale ships and merchantmen whose average passage was six months; steamers to the Isthmus brought the journey to one month, and now the railroad across the continent has diminished it to six or eight days. What a time and patience the overland emigrants must have endured with their immense ox teams, struggling along to reach the land of gold. It is a matter of history, although California in some years produces large amounts of produce, and that Gen. Sutter cultivated heavy crops of wheat when still under the Spanish flag and traded it off with Alaska for iron, that the first gold hunter who came there from the East had to pay enormous prices for the necessaries of life; and a New York paper in 1855 had the following, seven years after the gold fever had so completely absorbed attention all over the world: "The ship Adelaide arrived at the port of New York, on the 14th of October, 1855, from San Francisco, bringing a cargo of California wheat, barley, &c., which paid a profit to the shipper of nearly fifty per cent clear of expenses, the wheat selling at an average of about $2.00 per bushel. The same vessel returned to the same port from which the wheat was brought with 1,500 barrels of flour. Some would think that 19,000 miles was a long way to come to mill!"

The project entertained by the Ptolomies, of cutting a ship canal across the Isthmus of Suez, was thought impossible by many until the present century. The distance is not great, but the fact is that the ground consists almost wholly of movable parched sand. But notwithstanding these almost insuperable difficulties the Suez canal has been constructed at a cost of ninety-five millions of dollars, twenty-three millions more than the Erie canal of New York State.

This valuable improvement is highly beneficial to the commerce of the world, and is an indication of the value of the proposed ship canal across the Isthmus of Darien. Our minister to China in 1872 reported the United States trade to that country at 37 per cent. of the whole foreign trade of China. In that year tea was brought from China to Boston via the Suez Canal at a cost of 4 cents per pound; via steamship to California and thence by railroad, at 7 cents per pound. Here is an exemplification of the great benefit to all branches of industry, and to all classes of people in shortening distances and expenses in the transportation of goods. In 1822 flour sold in Western Pennsylvania at one dollar and twenty-five cents per barrel, and wheat in Ohio at twenty cents a bushel. There were then no facilities to distant markets, canals were few and railroads unknown, the pack-saddle, the lumbering stage coach and Conestoga teams carried the mails, passengers and freight. Pittsburg was a small town, and even as late as 1848 before the construction of the Pennsylvania railroad across the Allegheny Mountain, avoiding the inclined planes, it took eight days to make the trip from Philadelphia to Pittsburg, and cost from 60 to 100 cents per hundred freight on merchandise going west. Before the construction of the Columbia railroad, or fifty years ago it cost seventy-five cents to carry a barrel of flour from Lancaster to Philadelphia, now it is transported on the railway for less than one-third that amount.

Errors of Great Men in Respect to Agriculture.

Lewis Cass, of Michigan, in an elaborate address that contained much valuable information on agriculture, believed in the absurd notion that wheat taken from Egyptian mummies that had remained dormant for two thousand, years still had vitality enough to germinate. A year ago Gen. B. F. Butler delivered an address at the international Dairy Fair in New York which dealt heavy blows at the shortcomings, as he represented it, of our farmers. His comparison between American and French agriculture in a statistical point of view, preponderated vastly in favor of France, but his statistics were not very fresh, as they extended back to 1860 and 1868, and he put the crop of wheat, oats barley and buckwheat of France at 657,000,000 bushels against our wheat, oats, barley and buckwheat 434,000,000. But never a word had this eloquent champion of French agriculture to say of our immense crop of over a billion of bushels of Indian corn we produce, nor a word about our great crops of hay, tobacco and cotton. Why, our annual crop of corn alone overpeers the cereal crops of France.

The population in France has remained nearly stationary for many years, and in 1869 exceeded the population of the United States. The area of France exceeds the area of New York, Pennsylvania, Ohio and Indiana combined. Much of the soil in France is very productive, Paris is one of the finest cities in the world. But there are in France 7,000,000 landed proprietors, most of whom are too poor to ever taste of meat, and live mostly on coarse bread and vegetables. The land fit for tillage is cut up in parcels of a few acres, and occupied and cultivated by the owners, who are mostly miserably poor, overloaded with debt and strongly attached to routine practices. Although the small proprietors are industrious and economical, they have not the means with which to buy improved machinery. It is customary to associate wealth and respectability with the possession of landed property, and we are apt to conclude that a country where about every second person you meet is the proprietor of land must be in a prosperous condition. But the very reverse is the fact. In some districts the plows in use are said to be the same as those described by Virgil; and Wendell Phillips says in many parts of France and Italy the plow is unknown. It does not follow as a necessary sequence that because France exports large quantities of agricultural products, that her farming system is the best, or that her working people are in comfortable circumstances. The reverse is the fact, and Ireland and India are not the only countries in which the most abject poverty and wretchedness on the part of the inhabitants are found combined with great fertility of soil and a large exportation of food.

The small farm business which Butler so much extolled in France, can never succeed in a country that has such an abundance of good unoccupied land as the United States.

Near large towns the small farm business pays well enough the milk dealer and truck raiser. In the interior the farms of a 100 acres or more pay best, because the successful farmer needs implements, horses, cattle and help to cultivate the land, which the occupier of a few acres cannot use on his lot, and he is therefore the slave of the spade and the hoe.

In England the great evil prevails that the land is owned by the aristocracy and that the tenants are subjected to such hard bargains or heavy rents that they are mere slaves to the landlords. But even in Great Britain things have changed, sometimes one way and at other times another. In the twelfth century the feudal system, during Stephen's reign, presented deplorable evils. "The nobles burnt all the towns. Thou mightest go a whole day's journey and not find a man sitting in a town, nor an acre of land tilled. Wretched men starved of hunger; to till the ground was to plough the sand of the sea." Again, during two hundred years from 1620 to 1820 the land was largely owned and occupied by the men called yeomen, and never before nor since were the farmers as a class in England more respected.

But to-day the farmer, the actual farmer in England and everywhere in the old world has a hard situation to combat with.

In 1876 France produced 162,454,038 bushels of wheat, whilst the United States produced in 1879 425,000,000.

Butler says we are too much given to magnify our greatness, as if it were not sufficient of itself. Indeed we have great reason to be proud of our agriculture in furnishing an abundance for home consumption and a large surplus annually for exportation. He further says everywhere all over America there is the same spectacle of large farms unproductive and unprofitable. Now this is true of the very large farms in the West, but not true of the 100 acre farms, for no where in the world do you find more real prosperity among the occupiers of the land than among the rural population of the United States who cultivate their own farms.

In India, China, Japan, and generally in Europe, the population is dense, and the people, out of necessity are thrifty, industrious and economical. But would he either in France or in the East have found anything like the same comforts and conveniences that prevail in the United States among the farmers. Certainly not. It is a remarkable fact that nearly all the great and valuable inventions of modern times in agriculture, and manufactures, have been brought into use only after every artifice of the people had failed to ignore them. The absurd notion prevailed that they diminish labor and take away the means of working men making a living; that times were better for all classes than at the present day, notwithstanding all the improvements made in agriculture, manufactures, commerce, mining, education and government, and there are still many who talk of the good old times, of the old-fashioned ways of our immediate progenitors. Respect for those to whom we owe our existence is praiseworthy in a nation, as well as in an individual. But would we wish to go back to the spinning wheel, flax brake, the grass scythe, grain cradle, spade and harrow, the slow stage, &c., when we have the cotton and woolen mills, the reapers and mowers, the plow, harrow and cultivator, the locomotive and steamboat? They throw in the back ground the good old times, the better way, as the son did the sire in the play:

To teach his grandson chess then,
His leisure he'd employ,
Until at last the old man
Was beaten by the boy!

History and experience confirms the belief that we have not gone backward, but forward to a better state of prosperity, to greater comforts and conveniences than ages which have lapsed into eternity; and in no class of people be they learned in the professions of religion, law, medicine or other human pursuits, has there been greater progress than in the comforts and respectability of the American farmer; and this is generally true of all classes in the various pursuits of life in the United States, brought about by the ingenuity and skill of the mechanical inventions and improvements in machinery. What would the New England States be to-day without their manufactures and commerce? but their public spirited citizens foresaw years ago what makes a prosperous country, and bravely went to work to build factories and construct railroads. They did not fold their hands, or use them only to hold the plough with, but took hold at the right end and created markets at home in the manufacturing towns for their agricultural products. Thus by enterprise and industry the Eastern States have arrived at a high degree of prosperity; and generally the wealth, and especially so in America, has been created by the labor of the citizens in the various branches of industry.

The New England States furnish us an example of what can be accomplished by industry. Their geographical position is such that the climate one-half of the year is harsh, the soil generally stony and poor, but their water-power and commercial facilities and skilled operatives in the factories give them superior advantages. They work wealth out of their water and their stones; their ice and their granite annually bring them vast amounts of wealth.—*C. L. Hunsecker, Manheim township.*

PRESERVING FOOD FOR STOCK.

Is there sufficient evidence that "*Ensilage*" is a *successful* method of preserving food for stock? That our method of feeding stock, especially during the winter, is very wasteful there is scarcely a doubt; and any method that will tend to lessen the cost of feed and increase its value will be hailed with joy by all practical farmers. By some it is claimed that this can be done by preserving green fodder crops in silos, by the method known as "*Ensilage*." This method has been practised for some years by some French, Belgian and German farmers with favorable results. The plan usually adopted is as follows: Pits about 75 feet long, 9 feet wide at top and 6 feet wide at the bottom, and 6 feet deep. The sides and ends of the pits are built up of masonry laid in cement. In these pits cut cornstalks are laid in layers about 8 inches thick and sprinkled with salt at the rate of 66 pounds to the pit and tramped as solid as may be. The stalks are exposed to the sun for two or three days after they are cut off and before they are chaffed and put into the pits. In that time they lose about two-fifths of their weight. A pit holds about 80 tons. The fodder is heaped up about 6 feet above the surface of the ground and covered with earth to the thickness of two or three feet. As the fodder ferments it shrinks, and by the time the pits are opened it has lost about one-half of its bulk. One account says that the pits were finished on the 14th of September, 1872, and the first pit was opened April 15th, 1873. The fodder was found in perfect condition, except for an inch or two upon the surface and sides where it was blackened and decayed. The color was yellow, the odor agreeable, but the stalks had lost their sweetness and were somewhat acid. The fodder was eaten with great relish and only some portions of the harder stalks left. The second pit was opened July 3d, 1873 and was in as good condition as the first. The third pit was opened April 20th, 1874, 18 months after covering. It was in as good condition as the two, except that the discolored and decayed layer was thicker than in the others. This was attributed to the gravelly and porous character of the covering. The preservation of the fodder being due solely to the exclusion of the air.

In some instances the silos are built above ground and the walks banked up with earth. They are, I believe, generally considered more convenient. Some have covered the fodder with only a layer of clay nine inches to a foot thick, well tramped down. This would have to be watched carefully so that no cracks occur. The cost of the process here described is represented as being about three dollars per ton, including cutting, hauling, curing and feeding; the daily ration for ordinary stock being about 10 pounds.

A process similar to this has been in use in this country for some time for preserving brewers' grain, a substance containing about as much water as cornfodder. The principal difference being that the "brewers' grain" being finer than the cornfodder, it will pack much closer and exclude the air more thoroughly, so that a covering of jointed plank and a foot of straw on top of them is all that is required. So far as I know this process of saving fodder has not been attempted by any one in this country, except by Mr. J. W. Bailey, of Bellerie, Mass., and a Mr. Morris, of Maryland. The opening of Mr. Bailey's silo is described in the January number of the *American Agriculturist* as follows:

"The first silo in America, built on the French plan of M. A. Goffart, was opened at Winning Farm," J. W. Bailey, proprietor, Bellerie, Mass. on December 3d last. This silo or fodder pit is 40 feet long, 12 feet wide and 16 feet deep, roofed, and having a capacity of 500 tons. It was partly filled with green cornstalks, cut by an "Ensilage cutter, the pieces being 4½ inches in length. After this cut fodder had been thoroughly tramped down by men, a layer of straw 12 inches thick was spread over it all, and the whole covered closely with planks upon which about 50 tons of stones were placed. This was done early in October. At the opening of the silo the fodder was found to be in an excellent state of preservation; at first a little sour, but in a short time the sourness passed away, and when fed to cattle or sheep was eaten with a relish. A number of agriculturists and members of the press were present; in fact, the "opening" of the silo was well attended and voted a success. Mr. Bailey was so well pleased with his experiment that he will practice this method of preserving green fodder in a green state to a large extent the coming season. Others have also expressed their intention to erect silos at an early date. This is one of the most important of recent improvements in agriculture, and one which every one who raises cornfodder should investigate before the next crop is harvested. I wrote to Mr. Wm. Crosier, of Northport, L. I., a leading agriculturist, and here is what he says, after acknowledging the receipt of my letter and apologising for not answering sooner. He says, I am sorry I cannot give you any information on the subject you require. I am well satisfied with my own way of feeding. Cut or pulped roots, cut cornstalks mixed with bran and ground oats and fermented a little. I find it does better than steaming food for cattle. We have in this country too much land lying waste to go and make pits to bury our green fodder. And it will never, in my opinion, become a success; for instance, we cannot give it the time at the period to cut our hay and green corn to put it into subpits, and put on 10 or 15 loads of stones for every 4 or 5 feet of said pit. Although you have my heartfelt thanks for seeking of knowledge in getting food for cattle, &c.

From the reports of the very few experiments which have been made, I scarcely know how to answer the question referred to me. That fodder can be kept in this way I do not think there is any doubt, but whether it will pay (on farms of ordinary size) for the trouble and risk, I have very serious doubts. In the first place the pits must necessarily be very expensive, and secondly I think they would require very close attention, and unless the fodder be taken out with great care there would be danger that what remained in the pit would spoil. But if as they claim that 25 to 40 tons (and in one instance as high as 75 tons) of fodder can be grown on an acre, and that the ration of a cow is from 60 to 80 pounds per day. With the least yield and the greatest consumption here named, one acre will keep a cow 625 days, or nearly two years. Half an acre of fodder will keep a cow a year in stable or yard, and no other food is more productive of milk or more healthful than this. It is plain then that if this matter can be introduced into our farm practice, a great economy will result. There would be less trouble and risk in keeping cattle during the summer on food preserved in this way than by the soiling system. Because the rotation which is so necessary in soiling would be done away with, and the unpleasantness of gathering food during storms would be avoided.

I shall watch any further developments with great interest, believing that where large herds are kept and where men of more than ordinary intelligence have the direct management of them, it will pay. But whether it will pay better than roots, cut fodder and chopped grain fermented, as Mr. Crosier suggests, I am not prepared to say. Since writing the foregoing I received a letter from Mr. J. W. Bailey. He says, "Ensilage" is a perfect success. 60 pounds daily of cornfodder prepared by "Ensilage" is sufficient to keep a cow in as good condition as good hay "ad libitum," or good pasture will do. The cost of the silo will be not far from one dollar per ton capacity, and the cost of the ensilage will not exceed two dollars per ton. 40 to 50 tons can easily be raised upon one acre of good land." Now, gentlemen, you have the results of my research and must decide the question for yourselves.

*Read before the Agricultural and Horticultural Society' by Joseph F. Wilmer.

CAN WE PLANT TOO MANY FRUIT TREES.*

It is unnecessary to inquire into the antiquity of fruit-growing. Some kinds of fruits have been cultivated from the earliest historic ages. In all times the value of fruit as an article of diet has been recognized. In warm climates the inhabitants exist to a great extent upon fruit, and there appears to be a necessity for fruit acid, as a corrective of the tendency to bilious attacks and an antidote to the insidious effects of hot weather. Hence it is, that during the summer season in temperate latitudes, nature has provided a great variety of fruits, commencing early in the summer with the strawberry and extending until late in the season with a constant succession of palatable productions. The necessity of fruit acids in the dietetic regime is shown by the outbreak of scurvy among sailors and others who are forced to subsist for long periods upon a diet of meat and nitrogenous food, without the addition of vegetables and fruits. It is apparent, therefore, that fruit was intended by an all-wise Providence to occupy a prominent place in the human economy, and too much attention cannot be bestowed upon the subject.

An Important Era in Fruit Growing.

We have undoubtedly entered upon a most important era in the history of fruit growing in this country. In sections supposed to be utterly unfavorable to the production of crops of fruit, certain varieties of apples and other fruits are now grown with great success. During the year 1879, thousands of fruit trees were planted in Iowa, Minnesota, and the great region of the Northwest, hardy varieties of fruit having been discovered which are proof to the most severe storms

*Read before the Pennsylvania Fruit Growers' Society by Cyrus T. Fox, of Reading, Pa.

and extremes of temperature. The United States, with a great diversity of climate, and soils of the most fertile to be found upon the face of the globe, presents but few regions in which fruit-growing is at present prosecuted to any considerable extent. Much greater interest is manifested in fruit culture in the countries of Europe, and the importations of foreign fruits to this country amount annually to millions of dollars. "Fruit is too much of a luxury" is the cry to-day among the laboring classes who are unable to pay the high prices usually asked in the household markets of the different cities of this country. Pears at ten cents apiece, or the first arrivals of strawberries at fifty cents per box, while they may tempt the eye of the workingman, are too expensive to enter largely into his daily diet. Increase the production of fruit in this country, and with lower prices the consumption will increase to such an extent that the fruit-grower will realize a greater profit than he would upon a contracted base of operations. Too many fruit trees cannot, therefore, be planted. Let "fruit for the million" be the battle cry of the fruit growers of Pennsylvania for the decade upon which we have just entered.

The Granary of the World.

The great valley of the Mississippi must become the granary of the world. The tide of emigration flowing annually into Kansas and other sections of the Union beyond the Mississippi will reclaim the western prairies, and the golden harvest of wheat produced upon the great wheat lands of this country, the plains of Kansas and Nebraska, the valley of the Red River of the North, the fertile lands of Iowa and Minnesota, and other portions of our great and glorious country, will provide sufficiently for the wants not only of the people of the United States, but as well for the over-populated countries of Europe and other sections of the globe. With the great production of cereals throughout the western country, the cheap transportation of freight, and the discrimination in freight rates by the various carrying lines against the East, it will be impossible for the agriculturists east of the Allegheny mountains to contend with their Western brethren in the cultivation of grain crops. Attention must therefore be directed by the farmers of the East to more remunerative products of the soil, and of all departments of agriculture and horticulture, nothing can be engaged in to greater advantage, with less liability of overstocking the market, than fruit-growing. During the most prolific fruit seasons that this country has ever experienced nobody has ever heard of the market being overstocked, except in a few rare cases in some of the cities, when the more perishable varieties, as for instance peaches, have arrived late in the week and encountered a Saturday night glut. Decaying and imperfect fruit, delayed for lack of proper transportation facilities, have also arrived in bad condition and been sold at a sacrifice, but fruit in first-class condition has invariably found a remunerative market. Besides, fruit-growing has become a regular business, so that those engaged therein know how to take advantage of the market in order to realize the best prices and largest profits. Refrigerator houses, for the preservation of fruit for long periods, are constructed upon new plans, and the markets can be supplied with certain varieties of fruit in all seasons of the year.

The Canning Business

has also assumed immense proportions, and instead of the varieties of fruit which are canned being limited to a few kinds, the scope includes almost every variety now grown. Apples and pears in cans are largely in demand for export, and find as ready a market at home as canned peaches. Drying establishments upon improved principles, also throw upon the market large quantities of fruit in a shape that they can be successfully handled and shipped to almost every clime. American fruit finds a ready sale in European countries, and of late years a growing trade has been developed. Immense cargoes of apples are consigned every fall to England, France and Germany, and this foreign business in fruit is destined to largely increase, particularly if an effort is made to supply the demand. As to

The Profits of Fruit Growing,

a few instances in Berks county, which have come under the writer's notice may be cited. Mr. Christopher Shearer, the leading fruit-grower of this county, who was formerly engaged in business in Reading as a carpenter and master-builder, removed some years ago to Tuckerton, five miles north of Reading, where he established several fruit orchards on a farm of 100 acres. He has met with great success, and annually realizes much larger profits than could be obtained in any other department of agriculture. The products of his farm amounted during the year 1879 to $12,000. Thomas M. Coleman, Esq., of the Philadelphia *Ledger*, recently visited this farm, and wrote an interesting article in regard to it.

Henry Wagner, of Brecknock township, Berks county, turned his attention ten years ago to fruit-growing, and now has forty-five acres in cultivation in fruit trees—apples, pears, grapes, plums, cherries and peaches, the last mentioned being the principal crop. Following is given as the yield of a peach orchard of sixteen acres on his premises. The orchard was planted in 1869, and in 1872 yielded some peaches. In 1873 about 160 baskets were sold. In 1874 the yield was 1,600 baskets of peaches which were sold in the city of Reading, eight miles from the orchard, at an average price of $1.60 per basket. In 1875, 3,000 baskets were disposed of at an average price of 85 cents per basket; in 1876 (the best season,) 4,300 baskets were sold at an average of 75 cents per basket; in 1877 the crop was a failure, and the yield was only some 300 baskets. In 1878, 1,200 baskets were sold at $1 to $1.20 per basket; in 1879, 1,100 baskets were sold at an average price of 70 cents per basket, some remarkably fine Late Crawford peaches having brought $1.25 per basket. It will thus be seen that in six years—from 1874 to 1879, both years inclusive—the sum of $10,755 was realized from sixteen acres of land, or $1,792.50 per annum being at the rate of $112 per acre per annum for six consecutive years. What other crops would have produced the same returns? Mr. Wagner could not have succeeded with grain crops upon his farm, as the soil is light, but at the same time peculiarly adapted for fruit growing. He is of the opinion that the

Market Cannot be Overstocked

with fruit. On account of his success other farmers in his neighborhood have established fruit orchards, until they can be counted by the score, and hundreds of baskets are thrown upon the Reading market every season, and are sold at handsome profits to the growers. Although car-loads of peaches from Maryland and Delaware arrive in Reading during the season, the prices for the superior fruit raised within a few miles of the city are maintained, and are unaffected by the southern crop.

What was Done in Berks.

For the purpose of stimulating fruit-growing in Berks county, the Berks County Agricultural and Horticultural Society, at their annual meeting in January, 1876 unanimously adopted resolutions offering $300 for the planting of choice fruit trees, divided as follows: $200 to the person planting the greatest number, and $100 to the person planting the next greatest number. At a subsequent meeting, in order to encourage the smaller class of fruit growers, $100 additional was offered, $60 of which was to be given to the person having the best regulated orchard of not less than fifty trees, and $40 to the person having the next best. The time allowed for persons to notify the Committee of their desire to compete was until November 1st, 1877. Due notice was given of the offer of premiums by advertisements in the different papers of the county, and a carefully prepared list of the different fruits adapted to this locality was published for the information of fruit-growers, but the competitors were not obliged to adhere strictly to the list. The following standard of value was adopted: The apple and pear were considered of like value and accepting either as the standard the Committee required the planting of two cherry trees, three trees of plum or quince, or four peach trees, respectively, to equal the standard. The awards were reported at the annual meeting in January, 1879, as follows:

Christopher Shearer, the first premium of $200, having planted 2,600 peach, 1,049 apple, 576 pear, 436 plum and 223 cherry trees.

Henry Wagner, the second premium of $100, having planted 3,195 peach, 525 apple, 28 pear, 25 plum, 10 quince and 6 cherry trees.

Dr. J. H. Funk, of Boyertown, was awarded the first premium of $60 for the best regulated orchard. No award was made of the second premium for best regulated orchard, as those who might have been entitled to it failed to notify the Committee in time.

The premiums were ordered by the Society to be paid immediately after the fall fair, which was done on the 18th of October, 1879.

The Effect of Premiums.

The effect of offering these premiums was most marked, and since January, 1876, more fruit trees, it is estimated, were planted in the county than during the previous ten years. In the vicinity of Reading is is believed that fully 50,000 fruit trees were planted. Instead of the market being affected, however, by an overproduction of fruit, all the fruit that has been offered has found ready purchasers, at profitable prices. Peaches sold last season in Reading at 60 cents to $1.50 per basket. Apples now retail in our markets at 20 cents per half peck, and pears at 25 cents per half peck. The townships of Robeson and Brecknock Berks county, adjoin each other. The soil is of a sandy character, and unadapted to the cereal crops. A portion of the district is known as "The Forest" in consequence of its uncultivated state. Within the past four years, forty-four peach orchards have been established in Robeson township, by as many individuals, who have under cultivation a total of 22,090 trees. The orchards contain from 100 to 1,400 trees each. In Brecknock township there are fourteen peach orchards, with a total of 13,375 trees. The two townships have thus a total of 35,465 peach trees. The orchards are from six to ten miles from Reading.

The Progress Made in Fruit Growing.

The committee by whom the fruit premiums of the Berks County Agricultural Society were awarded, consisted of Messrs. Jacob G. Zerr, Henry Eppihimer, George D. Stitzel, George K. Levan, John B. Holloway and Henry B. Rhoads. Mr. Eppihimer, the chairman of the committee, rendered efficient service, and was ably aided by his colleagues. The cause of fruit-growing in Berks county has been greatly advanced through the efforts of Hon. Charles Kessler, General George M. Keim, Isaac Eckert, John S. Richards, John Fehr and Daniel B. Lorah, all of whom are deceased, and Hon. George D. Stitzel, Hon. Frederick Lauer, Ezra High, William Young, and other gentlemen still living amongst us. As to the progress made in fruit-growing in this county, we would refer to the remarks of Peter D. Wanner, Esq., of Reading, at the monthly meeting of the Berks County Agricultural Society held in Reading on January 3rd, 1880. In 1868, when a candidate for District Attorney, he made a thorough canvass of the county, and again in 1878 as a candidate for Congress. "The improvement in the way of fruit-growing in ten years," he said, "was simply wonderful. I came to places heretofore familiar, and was unable to recognize the surroundings. Fruit trees in yards and gardens, of all the most improved specimens, with beautiful shade trees, vines and shrubbery, had a marvelous effect and my delight knew no bounds. This was not only the case in one section, but was a general experience throughout the county.

A Profitable Branch of Business.

At the same meeting, Hon. Frederick

Lauer, of Reading, referred to fruit-growing as a profitable branch of business, and related the result of his visit as a delegate to the meeting of the American Pomological Society in September, 1879, at Rochester, N. Y. In the course of his remarks he said: "Fruit pays better than anything else, nor can the raising of fruit be overdone in this country. From less than one-quarter of an acre of my garden I annually sell pears and cherries to the amount of $100. No department of the farm should receive greater attention." In the course of a subsequent interview, Mr. Lauer stated to the writer, that for the purpose of protecting fruit-growers in this country some stringent laws should be adopted, such as are in force, for instance, in parts of Europe which he visited several years ago. A heavy fine is imposed for neglecting fruit trees and allowing injurious insects to spread. No tent caterpillars are seen on trees there as in this country. In Bohemia, a country with hills and valleys much like Berks county, there are a great many prunes grown, and the crop is an important one of export. In many sections of Germany the public highways are lined with fruit trees. In Spain it is the custom of the traveler who partakes of fruit on his journey to plant the seed along the roadside, in order that it may grow and produce fruit and shade for others. The German, or English walnut is much used as a shade tree in portions of Germany, where avenues miles in length shaded on both sides with trees of this profitable variety of nut, may be found. The English walnut has been grown successfully in Berks county, and should be planted more generally for shade and profit. In connection with fruit-growing attention should be given to the cultivation of nut bearing trees.

The Uses to Which Fruit Can be Put.

There are so many uses to which fruit can be put, that the question: "Can we plant too many fruit trees?" answers itself. So long as there is a demand for fruit, fruit-growing cannot be overdone, and it is not likely that the demand will ever cease, at least not with the present generation. As our country becomes more populous, the consumption of fruit will increase. The time will come when the millions of dollars which annually flow out of this country for foreign fruits and wines will be kept at home, for with the proper encouragement of fruit-growing we should be able to supply our own wants, and have a large surplus of fruit for export. The wine industry is destined to assume greater proportions in this country, and the production of grapes and other fruits is yet in its infancy. Commenting on the great deficiency in the French vintage of 1879, the London *Standard* thinks that more attention should be paid by England to American and Australian wines. "It is far from unlikely," says that journal, "that the time is coming when we shall be compelled to look for a large portion of our regular wine supply outside the limits of those regions whence we have hitherto exclusively derived it, to the fertile soil of that new world which lies beyond the Atlantic." For the purpose of obtaining the views of one of our most experienced and successful fruit-growers, the writer addressed a note to Christopher Shearer, of Berks county, reference to whose extensive operations have already been made in this article, and received a reply of so much practical value that it is herewith submitted in the hope that the information which it contains will prove profitable to the members of the Pennsylvania Fruit Growers' Society.

CONTRIBUTIONS.

For The Lancaster Farmer.

FARM-LIFE vs TOWN-LIFE.

How to keep our boys on the farm? is a question of very great importance, and not as readily answered as asked. That in a country like our own where three-fourths nearly of the population are engaged in agricultural pursuits, a very large proportion of the young men are born and reared in the rural districts, but the inviting temptation of the learned professions, manufactures and commercial operations, lures away from the field and stimulates the ambitious to seek the college, the marts of trade and the social habits of city life. Formerly, and even now in some of the old or European countries, the farmer's life is a hard, sad, slavish pursuit, attended with very little of the comforts and conveniences of life. But in our country the case at the present time is greatly improved, and the farmer's sons have here every inducement to respectability and standing in society with the professionals and the merchants.

Farming here is no longer the isolated, menial task which burdened the tillers of the soil in the early settlements. This is owing in a great measure to the improved machinery in agricultural labor. Farming is a surer business than manufactures or merchandising. It is safer than the professions in a pecuniary point of view. True, a very few in the professions, as well as in manufactures and commerce amass wealth, but the number of failures is legion, while the farming interest accumulates slowly but surely, and there are comparatively few who don't succeed.

A farmer having several sons, healthy, athletic fellows, but one of them is considered a little stupid, and he stays on the farm; the others, more bright, seek other occupations. The farm is too dull for them, the labor too monotonous. They start off for the town, go into business, and when the brothers are all old men the chances are that the gifted city traders are so poor that their less ambitious brother has to provide and take care of them in old age. This is no idle picture, but a reality, as we can can see every day.—*H.*

For The Lancaster Farmer

WHAT FERTILIZER SHALL WE USE.

Somewhat more than a year ago I wrote a few articles for The Farmer on "artificial fertilizers," trying to present the known and supposed facts and theories with regard to its action and the benefits resulting from its use. I have seen nothing brought forward since that time to change my views as then expressed.

To bring a full crop the soil must contain quite a number of certain ingredients and the lack of one of these is sufficient to debar the earth from "bringing forth its fruit." There are however only three of these ingredients that are in danger of being exhausted by cropping, all the others are present in practically inexhaustible quantities, either from the large quantity stored in the soil, or from the small amount needed for plant-growth.

At the risk of being tedious by repetition, I give the three elements of plant-food that are in danger of being exhausted, with such facts as I can glean: they are nitrogen, phosphoric acid and potash.

Nitrogen is the most costly of all the plant-foods that have to be supplied. It is found in immense quantities in the atmosphere constituting about four-fifths of the bulk of the air. It is here not in an available state for plant-growth, unless the plants absorb it by their leaves, as is advocated by some. To be used as a plant-food it must be combined with something else, such as potash or soda, and is then called a nitrate, as nitrate of potash, nitrate of soda, &c.

Nitrogen and hydrogen combined in the proportion of fourteen parts of the former to three parts of the latter (by weight) form *ammonia*. This is a gas liberated in large quantities in the manufacture of burning (illuminating) gas, and by proper manipulation becomes sulphate of ammonia.

The nitrate of soda and the sulphate of ammonia are our most important fertilizers when nitrogen or ammonia only are wanted. They are very quick in their action, and should be applied in not greater quantity than 150 to 200 pounds per acre. The nitrate of soda, in particular, is very soluble, and is in many places applied in the spring to winter wheat, just before a gentle rain, if possible. The effect is to start an immediate and dark green growth. It should always be applied to prepared ground at the last moment.

Phosphoric acid is the next most important element of plant-food, and if the action of the majority of those who use fertilizers is evidence, then in this section it is considered the most important, as you hear only the term "phosphate" used. This may arise from a habit some have of calling all fertilizers "phosphate." A phosphate is a compound of phosphoric acid and some base, such as lime, soda, magnesia.

The phosphate of lime chiefly concerns the farmer, and until within some years was mostly derived from bones. It is very important that it be understood that phosphoric acid may be in three different combinations with the lime, and that their immediate usefulness depends much upon in which of these combinations it is furnished.

In the raw bone it exists as *bone phosphate*, so called. The phosphate in this use is not soluble in water, and the bones must be reduced to a very fine state or their action will be slow. The average amount of phosphoric acid in bones is a little over 23 per cent., or not quite one-fourth the weight of the bones; some dealers state it at 52 per cent. phosphate of lime which amounts to the same thing.

When raw bones are treated with sulphuric acid (oil of vitriol) the bone phosphate becomes soluble phosphate of lime; some makers use the term soluble phosphoric acid. This preparation is what is usually called "phosphate" though the real name is super-phosphate. "Genuine super-phosphate when made from bones contains about 15 per cent. of soluble phosphoric acid, equal to about 20 per cent. soluble phosphate of lime. Very often they contain only 10 per cent. phosphoric acid, or even less; cases have been known where a so called super-phosphate had no soluble phosphoric acid at all, and less than 3 per cent. of the insoluble acid. This article was a fraud, and under our present laws payment of it could not be enforced unless a note had been given that passed into the hands of a second *innocent* party.

There is still another form of phosphate of lime. Among manufacturers and dealers it is known under the various titles of "reverted," "precipitated" and "available" phosphoric acid. The best superphosphates contain some of this reverted form, and some very good ones also contain more or less of the insoluble "bone phosphate" of lime.

In chemical language the molecular weight of lime is 28 and of phosphoric acid 71. Now the "bone phosphate" of lime contains three molecules of lime and one of phosphoric acid, making the molecular weight of this phosphate 84x71 or 155, thus a little over 45 per cent. of the phosphate is phosphoric acid in an insoluble form. In the soluble, sometimes called *acid* phosphate of lime there is only one molecule of lime to one of phosphoric acid, and hence the molecular weight of this phosphate is 28x71 or 99, the phosphoric acid, in a soluble state, being nearly 72 per cent. of the phosphate of lime contained. The reverted chiefly happens from the soluble phosphate taking up another molecule of lime, and consequently the molecular weight of this form of phosphate of lime is 56x71 or 127, the phosphoric acid representing 56 per cent. of the phosphate of lime; it soon becomes available to plant-growth, and the phosphoric acid is rated at about two-thirds of the value of the soluble acid, the insoluble is rated at about one-third such value. The latter applies only to that found in bones. When made from South Carolina rock, it, the insoluble, should have no value, as it becomes available very slowly.

Whether made from bone or from rock, always insist that your superphosphate, or as it is more generally called, "phosphate," contains a high percentage of *soluble* phosphoric acid.

Potash is the last element of plant-food to be considered. It is the one to which least

attention has heretofore been given, but its merits and the necessity of restoring it to soils that have had it removed by imprudent farming will insure its being kept before the farming public. The sources of supply are the potash, salts and wood ashes. These will be discussed further on, with remarks as to their special uses.

Stable manure contains all three of the elements of plant-food discussed, and is therefore a complete manure. A fertilizer to be complete must also contain all of them to make it a perfect fertilizer, and one containing only one, or at most two of these elements, is an incomplete fertilizer.

There may be said to be two schools of the advocates of fertilizers: the one uses fertilizers in which all three of the prominent elements of plant-food are present, the other aims only at supplying that which the soil lacks.

In a theoretical sense the latter school is right, but they work under such a disadvantage that in practice their theories are not often carried out by the common farmer. If soils could be analyzed fairly so as to show what is lacking the practical application would be plain, but unfortunately this cannot be done. So they have recourse to "soil tests," as they are called. By this it is meant that known incomplete fertilizers are applied to small plots of ground. As it must be determined which one or which two of the elements of plant-food are wanting, it takes no less than seven tests, and an additional test to see if they may not be all wanting.

Below is given a scheme of these tests. The X represents what ingredient the fertilizer contains and what the soil is tested for; the O would then represent what the soil would contain in sufficient quantity, and also represent the the ingredients that are *not* contained in that fertilizer.

The soil is tested for lacking.	Ingredient in the fertilizer.		
	Nitrogen.	Phosphoric Acid.	Potash.
Nitrogen,	X	O	O
Phosphoric acid,	O	X	O
Potash,	O	O	X
Nitrogen and phosphoric acid,	X	X	O
Nitrogen and potash,	X	O	X
Phosphoric acid and potash,	O	X	X
All three,	X	X	X

The scheme looks very pretty, and doubtlessly will work on tracts of level or genly rolling lands, but I think they will be worthless in all places that may be termed hilly. In the latter kinds of land you will often find the soil in the same field to be of three kinds, or of three degrees of fertility; on the top of the hill medium to good; at the brow poor to medium; at the foot good to very good. To test such soils is well nigh impossible.—*A. B. K.*

(To be continued.)

LETTER FROM NORTH CAROLINA.

SALISBURY, N. C., January 26, 1880.

EDITOR LANCASTER FARMER.—Your January number for 1880 is to hand and contents noticed. In it we find much useful *and needed* information, always a welcome visitor in our household. Long and prosperous may it and its editor and publisher live, hoping that the people, especially those of your great agricultural county, will subscribe for it and contribute to its valuable columns and make it second to no paper in its line published on this continent at least. Every native born Lancaster countian, whether living there or elsewhere, ought to feel proud of their birthplace. Look at your fine stock of all kinds, your grains, grasses, fruits and well cultivated lands, and say, who there cannot afford to aid in building up THE FARMER, both in money and words. Hope all will put their shoulders to the wheel and roll it on and upward. If they will do so I have no doubt but that they and their children and children's children will be benefited by it. The farmers here, in 1879, made in quality and quanity fair crops of wheat, corn, oats, Irish and sweet potatoes, cotton and tobacco; less rainfall here this winter than for years past, and no snow so far; weather unusually fine; wheat and oats looks well; ground in good order for snow, and I would like to see snow fall and lay for six or eight weeks, believing it would benefit both wheat and oats, and also keep fruit trees, grape and other vines from putting forth too early. Planting trees or vines, at whatever time planted, fall or spring, depends much upon climate, soil and manner in which they are managed: such is my experience, whether it is worth anything to others or not. I have seen soot from chimneys and stovepipes applied to grape vines and rose bushes, around the bodies on the ground, and prove beneficial.

As regards fertilizers, I have seen none prove better than barnyard manure and clover well put on and in. They will improve land, and it will hold out longer in producing than any other I have yet seen applied and experimented with, and not so expensive to make. This world, to me, means work, management and perseverance. I know farmers who baled and shipped hay, straw, cornfodder and shucks, leaving in some instances barely enough, if enough, on their farms to supply the need of their horses, cattle and sheep with roughage, made but little homemade manure of course, but tried patent manures, believing them to be cheaper and better, but time proved it otherwise. No artificial manures of any kind, of whatever name called, would I allow to be put on my land gratuitously without any cash or expense to me whatever, unless it was on an old worn out field, to raise a crop of grass or weeds to turn under in a green state and then stop applying it, and go for barnyard manure and red clover.—*M. R.*

SELECTIONS.

THE ECONOMY OF A GARDEN.

It is a common opinion among farmers that a garden for vegetables and small fruits is a costly luxury. It is a luxury which they would like to possess, but the constant thought that they can make money faster by working in the field prevents them from giving more than a secondary attention to the garden. It is neglected as a matter of course, becomes infested with large weeds, which are difficult to clear out and the whole thing results as a failure. The owner is discouraged; he has found the garden a source of cost and difficulty, and he concludes that it is necessarily a very troublesome piece of ground to manage.

There are two causes for this unfavorable result. One is that the garden is left untilled and unhoed in the press of other work until the weeds become so large that a ten-fold increase of labor is required to work it. Had it been promptly taken in hand, and the weeds destroyed before they came up, quickly passing the hoe or steel rake over the surface, the labor would have been comparatively trifling and the growing crops would have been clean and vigorous in growth. The twenty-acre field of corn and potatoes should have given way to the half-acre of peas and lettuce, parsnips and spinach, cauliflower and asparagus, beets and onions, cabbages and cucumbers, tomatoes and squashes, melons and berries. The small half-acre would have been readily attended to; the twenty-acre field could have taken the second chance.

The other cause of failure is in laying out the garden so as to require much hand labor instead of doing nearly all with a horse. The ground selected should be long and narrow, so that when the long drills of vegetables are planted they are worked by running lengthwise with the garden and thus obvigating frequent turning. A strip of ground in grass, ten or twelve feet wide at the ends, admits the easy turning of the horse. Or the kitchen garden may occupy a portion of an open field with limited room at the ends for that purpose.

Having arranged the ground in this manner, plow deeply and repeatedly and manure highly and in advance. This, with modern annual applications late in autumn or in winter, will keep the ground always in good condition. Sow seeds or set out plants in lines extending lengthwise about two and a half feet apart. Smaller kinds may be in double drills. With narrow cultivators and one-horse harrows a few inches less may answer; but a distance of thirty inches will not be a waste of ground for most vegetables, for the rich soil, frequent and clean horse culture and greater room, will give the plants such luxuriant growth as they never could have in a more crowded space and with occasional and feeble hand hoeing.

Now, examine the expense of such a garden by a fair estimate. Begin with the small fruits and take raspberries as an example. We may make the estimate for an acre, and then reduce it to a family supply. The plants may be secured by a little care in advance, and the small rooted ones be set out in autumn, each protected through winter with a forkful of manure; or they may be taken up if near at hand, when green and growing, early the next season—and in either case will afford crops of berries in a year or two. The cost of planting will be scarcely more than for an equal area of potatoes; and as this planting will not be repeated for several years, it will be fair to offset any additional labor on the raspberries until well in bearing, against the annual work of planting the potatoes. The yearly culture by a horse will be quite as easy as to cultivate potatoes or corn. A moderate estimate of the raspberry crop is fifty bushels per acre—say one-third the potato crop, and equal to the corn crop. Let us ask any farmer if a bushel of raspberries, distributed at the rate of two or three quarts a day on the table, would not be really worth, in money value, in providing for his family, more than a bushel of corn? Again, take the strawberry crop. By horse culture, a bushel of strawberries may be raised about as cheaply as a bushel of potatoes. Would not the roots and the berries combined be worth more as daily food than nothing but a dish of potatoes to eat? The same reasoning will apply to many of the vegetables. The full supply of these, in connection with other food, would save the cost of many grocers' bills.

But there is still another way in which these supplies would prove of positive financial economy. A daily portion of fresh fruit, with other food, contributes to health, and often prevents formidable disease. We have known a number of instances where the diseases of malarial regions have been entirely excluded from families by a regular provision of fresh fruit, while its absence in other families had resulted in long-continued sickness. In one case a family moving into a newly-settl d region took with them enough dried fruit for daily use through the season. All the members continued in health. The next year, their supply being gone, several were taken down with intermittent fevers. The loss of time in sickness is a serious matter; the fatigue of waiting on the sick is undesirable; costly doctors' bills cut sharply into the farmer's revenue.

In conclusion, then, for the sake of saving expense, preserving the health of the family, and providing a full share of the comforts and luxuries of the table, prepare and plant a garden that may be cultivated with a horse as often as once a week the season through, and let the small needed care be first and not the last thing on the list of farm operations.

POPULAR BREEDS FOR PORK AND LARD.

The hog the farmer derives his profits from is the one that converts his surplus corn into meat and makes the largest number of pounds for the bushel of corn consumed. It has been demonstrated over and over again that some

pigs fatten readily, while others can only be made fit for the pork barrel with great difficulty and expense. In order to lay on fat quickly, the pig must be a good eater and have plenty of substantial food. Each farmer with stock on hand will soon learn from a glad or sorry experience if he has a breed capable of being economically prepared for the slaughter-house or not, and each farmer can consequently profit by the result of the next two months. If the present lot prove to be of the kind that eat voraciously without giving paying returns in meat and lard, the owner will be wise only if he change the grade, at least, if not the breed of his new stock.

No one of the domestic animals is so easily moulded as the hog. Much may be done by the swine-grower in perpetuating desirable qualities by simply observing individual excellence, whatever the breed may be. In every litter one or more pigs can be selected that will prove very much better than the others, with the same care and keeping. The breed known as the Poland-China possesses all the constituents of hardiness with wonderful powers of assimilation. These hogs may be bred in any size desired, and can be fatted readily for market at any age; they are also prolific and are looked upon by many feeders of the west as among the very best of "pork-making machines."

The Berkshires, which have become so numerous and which are constantly improving, combine many good qualities favorable to their popularity. Crossed with Poland-China they make excellent feeding hogs, fattening readily and quickly attaining reasonable size. The sows are unequaled for prolificacy and as careful nurses, while the pigs are strong and active.

In Georgia where pork-packing for home consumption has largely increased within the past few years, forty-one per cent. of the growers report the Berkshire breed most profitable. The Berkshire is also reported as the favorite breed to cross upon the common stock. The Poland-China is regarded highly by the few who have experimented with this breed. In Virginia, where grades are employed for pork over pure breeds, the Berkshires are also preferred for crossing on ordinary stock.

The Suffolks, a popular breed in England, and there known as "the English nobleman's hog," from the fact that it is always in condition to kill and gives meat of fine quality and flavor, is not popular among the majority of the farmers here. The objections to hogs of this breed are, their comparatively small size and tender skin, in addition to which may be said they are unsatisfactory breeders and nurses.

Essex swine are bred in a limited way in some localities, being perhaps better known in Kentucky than elsewhere. They seem to be essentially the same as the Suffolk except in their black color; they are also less liable to skin diseases. While a valuable standard breed, there is small probability that the Essex will ever become a prevailing one, its small size among other things being against it.—*New York World.*

AMERICAN CHEESE IN ENGLAND.

The *Live Stock Journal*, an English periodical, in a notice of a fair in England, has the following in regard to English and American cheeses:

"Our regret is on the score of quality—of mellowness of texture; cleanness of flavor and of general richness; for in these points the American cheese is better on the average than it was last year, while our own is worse, and the judges declare that without exception the American cheese is better than ours. We have on previous occasions pointed out that we in England were losing ground in the race, and that America was gaining it, and that the difference was owing to the improved methods and appliances that are in general use in the latter country; and the disparity is only less marked because the soil, the herbage and the climate in this country are each and all better than those in America for cheese making purposes. It is purely a question, then, of practical ability; superior management, and we say so advisedly. Ten or a dozen years ago the quality of American cheese sent to this country was such as to cause our own cheese-makers to smile; but now the smile is on the other side of the face. At that period, indeed, no one thought for a moment that we had anything to fear from the quality, whatever we might have from the volume, of American competition in cheese; but now we are beaten all along the line. And this is not so much because the quality of English cheese, on the average, is lower than it used to be, as that the quality of American is so greatly improved. Careful inquiry into scientific principles, and scrupulous attention to details of management, are the means by which our American friends have so greatly improved their dairy products. As the matter now stands, we have American cheese on the one hand, and Continental butter on the other, prominent and popular in our best markets, and we have to content ourselves with inferior prices. How long this state of things is to continue depends entirely on British cheese and butter makers. That there is a splendid market open and a rising industry to be cultivated is patent to all; but one thing is certain—our competitors will not easily be made to relinquish the position they have gained. Increased knowledge, quickened energies and incessant activity in adopting and adapting every improvement in appliances and modes of management, will alone enable us to compete with success; but given these, we will back the British dairy farmer against the world."

THE MAKING AND PRESERVATION OF MANURE.

No part of the farmer's vocation requires more knowledge and care than the best method of making manure, and its subsequent preservation and judicious application to the soil, and no doubt his success and thrift depend almost entirely upon his skillful management in these particulars. The whole contents of the barn pass through the stable between fall and the advent of the pasturing season. The *first* requisite in the comfort and good condition of farm stock, at any season of the year, is judicious feeding; and the *second* a good supply of pure, wholesome water at or near the barn. The cattle or other stock will thrive as well when they have to travel a considerable distance, regardless of the weather, for their supply of water, is now hardly conceded. But the great waste of valuable manure in long watering lanes is a serious argument against their use. 'Tis true that the location of some farms is not favorable to a plentiful supply of water at either barn or house, but where wells of moderate depth cannot be had, then cisterns must be resorted to, for they are available upon the highest hills as well as upon the lowest meadows.

That manure when once made, should be kept in layers or piles of considerable thickness and kept tramped or made solid by stock constantly passing over it is now perhaps regarded as good management of it. However, if the stock is to be kept stabled the whole time—not let out to pasture at all—then the manure as it accumulates can, perhaps, not be better preserved than to apply it immediately, or as soon as possible to the land. But if this application is impossible then it should be put in ricks or piles of considerable size, there to ferment and decay until the season arrives for its application to the soil. And in every case a supply of water to fermenting manure is indispensable. The escape of ammonia and many valuable gases in the process of fermentation and disintegration that takes place in all decaying vegetable matter, is allayed and the volatile elements arrested and fixed by a timely and regular application of water, either from the barnyard trough or of rain from the clouds.

This at once brings up the question of manure sheds as appendages to barns. The writer is fully aware that it is claimed that shed manure is much more valuable than that made outside which is not under cover, but this argument is qualified in several particulars; first, if the shed is large and so arranged as to keep the contents *dry* during the decaying process, little or no proper manure-making will take place, but only a souring and burning of the entire mass, and such generally comes out little in quantity and poor in quality; but if the shelter is narrow and open under, very much moisture will reach the manure by blowing rains and inclement weather, and in that case sheltered manure may come out in excellent condition. But if the shed is large, plentiful and frequent application of water from some source should be conducted to the decaying mass; it should always be kept moist to insure best results.

There is no doubt that as our farm lands become cut up into smaller subdivisions that more attention will and must be given to this subject. Manure will be husbanded with the utmost economy—our yards and even the public roads will be gleaned of their rich agricultural treasure to swell the crops and fill the barns of the thrifty farmer.

In the olden countries of the world this manure-saving is the most valuable economy the American sight-seer beholds—scraping and sweeping and securing in piles this decayed produce of the land only to be re-applied to successive crops: it is, as a new principal put to interest every year, which compounding with the principal constantly enriches the farmer by his steadily augmenting crops. As this manure saving principle is the success of the farmers where population is dense, so it, in time, will be the greatest economy the farmers of these older Eastern States can practice. Let not our farmers depend on high-priced commercial fertilizers of long-sounding and learned chemical names, so much as the proper and prudent management of the supplies that a bountiful nature has placed within the reach and often upon the very farm of the cultivator.—*T. B., in Lancaster Inquirer.*

THE MENHADEN FISHERY.

The commercial importance of the American Menhaden is shown by Prof. Baird, Commissioner of Fish and Fisheries, in his report just issued. The greatest value of the Menhaden is in its oil, the annual yield of which now exceeding that of the American whale fisheries by 200,000 gallons, and in 1871, nearly equaling the yield of whale, seal and cod oil combined. Besides this, the value of the refuse of the oil factories for fertilizing purposes is very great, and the amount derived from this source in 1875 was estimated to be equal to that contained in 60,000,000 pounds of Peruvian guano, valued at nearly two million dollars. In 1876 the yield of the Menhaden Fishery was more than twice that of any other carried on by the fishermen of the United States, and in value of its products it was surpassed only by the cod and mackerel fisheries. In that year the catch of Menhaden was 462,000,000 pounds, valued at $1,657,790 while the catch of cod, 215,000,000, was valued at $4,825,540, and of mackerel, 49,000,000 pounds, was valued at $2,357,262.

The Menhaden has a wide range, appearing, at various times of the year in all waters of the Atlantic coast from Maine to Florida, while it has not been known at a distance of more than forty miles from the land, although a species resembling it has been found on the coasts of Brazil and West Africa. Menhaden have been plentiful on our coasts from the earliest times; schools forty miles long and two miles wide have been seen, while single hauls of 300,000 and 400,000 fish have been made. It is still the abundant fish on the Eastern coast of the United States, and as there has been no sensible diminution in its numbers during the fifteen years of extensive

fisheries, there is thought to be no danger of its decrease for many years to come. The Menhaden has many parasites and enemies, among the most prominent of which is the bluefish. Prof. Baird estimates that the annual destruction of Menhaden by its enemies upon the entire Atlantic coast will not fall below 6,000,000,000,000 of pounds. This estimate is based, not upon guess-work, but upon careful examination, and although the figures are almost beyond comprehension they are not published without care. In view of this prodigious destruction of Menhaden by its natural enemies, it must be allowed that the few million pounds annually taken by man are quite insignificant, and that there need be little fear that, even with the destructive appliances at his command, he will be able to exterminate these fish, or even to make them scarce.—*New York Mercantile Journal.*

COMPARATIVE VALUE OF FOODS.

In a recent lecture on the chemistry of food, by Professor Church, some suggestive points of dietetics were well brought out. Of all the cereals, says Mr. Church, wheat yields the best bread. This is believed to be due principally to the character of the nitrogenous matter of wheat. The main constituent is a fibrine, and it can be readily obtained for examination by making a little flour into a dough with water; and then washing the starch out by means of a stream of water. There is then left a grayish-yellow, tough, elastic mass, which is gluten. Speaking of peas, beans, and various kinds of pulse, it was pointed out how much more nearly the different kinds agree in composition than the cereals do. The great drawback to the use of various kinds of pulse is that they are so difficult to digest. They are an excellent theoretical food, according to analysis, but they are a severe tax on digestion. Of all the beans, none presents a better typical food than the Soy bean. Lentils have been much spoken of lately as a good food, and they undoubtedly approach to a good typical food, but they are bitter, astringent, and not easy of digestion. It has now come to be pretty well recognized that the food of a man doing hard work should have flesh-formers to heat-givers in proportion of 1 to 4½, and that the food of a child should have 1 to 7. Bread gives 1 to 7½, where the heat-givers are more than even a child wants; so it is not a good food by itself. Pulse gives (taking an average) 1 to 2½, which is far too small. In these calculations heat-givers are reckoned as starch. Potatoes give 1 to 16, according to the latest analyses, the old 1 to 8 being evidently an error. Onion is 1 to 4, an excellent proportion, though onions are not much in favor as food. In looking at the relative values of flesh-formers and heat-givers in foods the actual amount of water must not be forgotten.

STATE ORGANIZATIONS.

ANNUAL MEETING OF THE FRUIT-GROWERS.

The annual convention of this society, held this year in the borough of Bethlehem, opened at 2:30 P. M. on Wednesday, January 21, under very favorable auspices. Never in the history of this society have more (if as many) prominent horticulturists assembled at its regular meetings as on this occasion. The hall of the Young Men's Christian Association, where the society met, was most admirably arranged with flowers and evergreens. The very excellent mottoes and fine chromos on the walls of the hall made it doubly attractive.

President Hoopes having declined, on account of ill health, the meeting was opened by H. M. Engle, one of the Vice Presidents.

The customary routine of reading of minutes, receiving Treasurer's report, as also that of several of the minor committees, having been gone through, the report of the general fruit committee, by its chairman, E. Satterthwait, was read and was quite interesting.

A paper from Casper Hiller, of Lancaster county, on the dark side of fruit culture, was read by the Secretary. It was discussed by Mr. Meehan and others. Mr. Meehan argued that although fruit culture has its dark side, it is not near so dark as pictured by Mr. Hiller.

A paper prepared by C. F. Fox, of Reading, entitled, "Can we plant too many fruit trees?" and also one by Mr. Shearer, relating to the same subject, were read by the Secretary. Both gentlemen took the position that too many fruit trees cannot easily be planted during this generation, that increased production will induce increased consumption, in consequence of reduced prices, which would still pay the producer reasonably well.

A paper from Levi S. Reist was also read by the Secretary, relating to botany. The writer claims that botany, as all other branches of interest to the tiller of the soil, should be taught in the common schools.

The evening session opened with Judge Stitzel, one of the Vice Presidents, in the chair. He having been solicited to prepare the annual address, he delivered the same, and it abounded in many excellent and instructive ideas. Remarks were made by several gentlemen, but the address was generally approved. The committee on nominations reported the following, who were unanimously elected: President, J. D. Stitzel; Vice Presidents, H. M. Engle, Josiah Hoopes, Wm. Bissel; Recording Secretary, E. B. Engle; Corresponding Secretary, W. P. Brinton; Treasurer, G. B. Thomas.

A paper on strawberry culture was read by F. F. Mereeron, of Catawissa, which elicited considerable discussion. As to varieties, the Sharpless, Cumberland, Chas. Downing and Wilson received general commendation, but the former is strongly endorsed by those who have fully tested it. The question, "Are birds really the fruit grower's friends?" was warmly discussed, pro and con, by a number of the most prominent men in the society, and I must confess that the result appeared to be a drawn game, with the benefit of doubt in favor of the birds. With the closing of this discussion the meeting adjourned until Friday morning.

The morning session opened at 8:30, President Stitzel in the chair. The first subject taken up was a discussion on a question of the best varieties of grapes to plant for home use, market and wine, which elicited remarks from several members and resulted in leaving the field to the Concord as the fruit for the million, except the sentiment of Mr. Farley, a prominent grape grower of New York, who declared that he would plant no black grape for market, as the white and amber-colored grapes outsell the former in the market by 50 per cent.

The question, Should the tree agent be encouraged? came in for consideration sharp shooting, which resulted in drawing a distinction between honest and dishonest tree dealers, as well as of other occupations.

Extracts from a very interesting document were read, prepared by John Rutter, of West Chester, on peach culture. He is a veteran peach grower, he having planted and fruited peach orchards in Pennsylvania, Delaware and Maryland by thousands.

He has settled down to the honest conviction that peaches can be grown as successfully in this State as in either of those named, and that there is no occasion whatever for our State to look to other States for peaches, if she attends properly to her own resources. This is indeed gratifying evidence, coming from such authority. Let us hope it will be improved.

Mr. Rutter was one of the leading men who organized this society twenty years ago. His papers are to be published in book form soon, and will no doubt be an excellent guide to the peach grower, the most important part of which will be the prevention of yellows, so detrimental to peach culture almost everywhere. It will also contain many practical and instructive matters of interest to tillers of the soil generally.

The afternoon session opened with numerous questions put to Mr. Rutter in reference to his subject, which he answered freely. Next in order was a lecture on window gardening, of which quite a number of the ladies of Bethlehem availed themselves. The lecture was a rich treat, not only to the ladies but to all gentlemen present.

A very pleasant episode occured at the close of the lecture by the presentation of a beautiful bouquet from the ladies, passed to the lecturer by Mr. Harrison, with a few very appropriate remarks, who received it with surprise, but soon recovered his equilibrium and responded with much grace in equally appropriate words.

A paper on entomology, prepared by Mr. High, of Berks county, was read, which was quite good, but was passed over without discussion.

Mr. Stevenson, of Lackawanna county, read a very interesting paper on mixed orcharding, giving his method of preparing the ground, planting, cultivating, etc., also both his successes and failures, pointing out what he should have done to achieve success, all of which was quite instructive.

A paper from Mr. Barnett, of Reading, on the subject of awakening a more general interest in the work of horticulture in our State, was very pointed and excellent.

A very interesting paper was read on the following subject: "Can we plant too many fruit trees," by C. F. Fox, of Reading. The writer recapitulated the inducements which the Berks County Agricultural Society held out to planters a few years ago, and summed up the results, showing the additional prospects that the county now has, to what it would have, had there been no stimulus applied. It sums up with the conclusion that we cannot plant too many fruit trees.

A paper of similar import from Christopher Shearer, of Berks county, was read, which arrived at similar conclusions to that of Mr. Fox. Mr. Shearer is the gentlemen whose name went the rounds of newspapers recently as having made $8,000 profit off his farm of 100 acres in 1879.

Several other papers and questions were read and discussed, all of which were instructive matter, but time and space does not permit to describe them. Among them were, non-productive fruit trees, what are the causes? by H. M. Engle. Questions—Are birds really the fruit grower's friend? Can we introduce too many new seedlings? Does the root exert an influence upon the graft? Should our society offer prizes for essays? It was agreed upon the latter, that so long as the society can procure a supply, as at present, there is no occasion.

Some discussion was had upon what are the best varieties of apples and pears. The former were not extensively discussed, but York Imperial and Smith's Cider were considered at the head, as good keeping winter fruits. On pears there was a general agreement on Bartlett, Seckel, Lawrence, D'Anjou, Howell and a few others.

Quite an interest is felt in the prospect of a new race of pears, in consequence of several new seedlings, supposed to have resulted from a cross between the Chinese Sand pear and some common kind, the most prominent of which is Kieffer's Hybrid, a very showy, large pear of good quality. What is especially expected are varieties of vigorous growth and free from blight, which is the character of the Sand pear.

There were samples of apples and peaches placed on the table from B. L. Ryder, of Chambersburg, evaporated by the American Dryer, which were very much admired. In color and flavor they came as near the natural fruit as probably they can be made, and if generally a success they must come fairly in competition with canned fruit, and possibly supersede it.

The next annual convention will be held in Gettysburg, on the third Wednesday of January, 1881.

SEMI-ANNUAL CONVENTION OF THE MILLERS' ASSOCIATION.

The Harrisburg *Telegraph* gives the following account of the above convention, which met in Harrisburg recently:

The Pennsylvania Millers' State Association held its semi-annual convention in the parlors of the Lochiel hotel. The convention was called to order by the President, Charles A. Miner, of Wilkesbarre, who made a few opening remarks, as follows:

Gentlemen of the Pennsylvania Millers' Association:

I have no lengthy formal address to inflict upon you at this hour of the day, and I do not intend to occupy your time with any extended remarks, as there are doubtless many among you better prepared to instruct the convention and impart information upon the various subjects connected with our business. So I will only use a moment of your time, which, at the late hour of our meeting, must be used economically, and can be employed to much better advantage. When about a dozen of us met in these rooms a little less than two years ago to organize this association it seemed like a very small beginning, and the outlook was not at all cheerful, and if any one had told me that in less than two ysars we should have such an organization as we have now, with one hundred active members on the roli, and our meetings often attended by that number, I should have thought him over-sanguine. But such are the facts, and such is our condition to-day; and our membership is rapidly increasing at every meeting, and I venture to say there is not a State association in the Union with better prospects than ours. That Pennsylvania should have a successful Millers' Association is not strange, for I think I am safe in saying that there are more mills within her borders and more money invested in the business than in any other State. To be sure we have not many very large mills, but we have some very good ones, and when our friend and fellow member, John Hofler, gets the elegant and immense establishment, with its fourteen run of stones, completed, which he is now building in this city, he will have one of the best, if not the very best, New Process mills to be found in all the States.

I am very sorry I could not be with you at Altoona in July last, but my private business required all my attention at that time, and I know you will kindly excuse my unavoidable absence, as it is the only meeting I have missed since our organization.

As this is probably the last time I shall preside over your deliberations I desire to thank you for the uniform courtesy and kindness with which I have been treated as your President, and to ask at your hands during the present session the same indul-

gence and kindly assistance you have heretofore favored me with in furthering the business before the convention. Before I sit down I will take this opportunity to extend a cordial invitation to this association to hold its next meeting in the city of Wilkesbarre. Col. Hancock, one of our members, and a townsman of mine, who has heretofore regularly attended our meetings, but is unable to be present to-day, unites with me in this invitation, and desired me to say to the convention that he would use his best endeavors to make the visit a pleasant one. Our city is located in about the centre of the far-famed Wyoming valley, in the heart of the best and richest anthracite coal field, and to those who have never been there the occasion could be made a most interesting one. The thriving and busy city of Scranton, with its numerous furnaces and rolling mills, factories and mines, is only eighteen miles to the north of us and would well repay a visit. The scenery of our valley is unsurpassed in this country, and is every year visited by hundreds of persons with the sole object of enjoying it, and last, but not least, our hotels will carefully consider this question before deciding to decline our invitation.

We will now proceed with the business of the convention in its regular order.

The minutes of the last meeting held in July, 1879, at Altoona, were then read by the Secretary, A. Z. Schoch, of Selinsgrove, and approved.

The Secretary, Mr. Schoch, next read his report, which is as follows:

Since our last meeting little has been brought to my notice affecting our interests to which to call your attention, or that requires your consideration. We have added to our membership nineteen names, making 106 to date. During the interval our membership in the National Association has also been increased by 7½ run, a total of 53½ for the State. I would be pleased to have our representation in that organization largely increased, as I do not think our obligation thereto has been fully discharged. Under its auspices will be held the Millers' International Exposition at Cincinnati, in June next, which occasion will doubtless prove a rare opportunity for observation. As many as can should avail themselves of that extraordinary privilege. I would respectfully call your attention to the propriety of taking some action to secure a creditable representation from our State.

Mr. Schoch read the Treasurer's report, showing that something over $1,000 had been received and expended during the year, leaving a small balance in the Treasury. He requested that a committee be appointed to inspect the amount and report on its correctness. On motion, a committee was then appointed.

A calling of the roll revealed about sixty delegates present.

The reception of new members was next in order. The list of membership was increased by nine during the session.

The various committees were then called. The committee on patents was excused until evening. The committee on insurance was also excused until evening. The committee on grain for drilling reported. The report of Mr. John Hoffer, of Harrisburg, chairman of the committee on grading and preparation followed.

This being the time for the election of officers for the ensuing year, a motion that the old officers hold over for the ensuing year was adopted, and the old officers re-elected *viva voce*. A resolution of thanks to the officers for services during the past year were unanimously adopted. Mr. John Hoffer extended a cordial invitation to the association to inspect his new mill on the southern part of this city, and on motion the convention adjourned until seven o'clock P. M., to enable the delegates to accept the invitation.

Evening Session.

The convention was called to order at a quarter to eight o'clock by President Miner. The first business in order was the reading of the report of the committee on grain for milling which had been read in the afternoon but had not been acted upon. The report rejected the "Fultz or Clawson" wheat, giving preference to red wheat. The report was adopted without discussion.

The committee on insurance offered a resolution for the continuance of the committee who are authorized to organize the Pennsylvania State Millers' Mutual Insurance Company. The resolution was adopted.

Mr. H. B. Horton, of the National Millers' Insurance Association of Chicago, by request addressed the convention on the subject of insurance. He stated the condition of his company, and showed the great benefits of the mutual system and the great saving to millers which was its result. Millers who take policies in many States are saved one-half the rates they have been paying. At present the association is carrying about $2,500,000 worth of property.

The report on grading and inspection was re-read, in which as there is no regular rule for grading, a number of suggestions were made. The report also recommended that a committee of one from each county be appointed for the purpose of setting forth the importance of this subject to millers. A discussion followed which was participated in by Messrs. Small of York, Creswell of Huntingdon, Eisenberger of Huntingdon, Wenger of Lancaster, Blair of Wayne, and others. The endeavor of the association is to establish throughout the State a uniform grade of prices for different grades of wheat. The discussion developed that the difficulty in the way of this is the competition among the millers, which tends to run up high prices for poor wheat.

The report of the committee was adopted and the executive committee of the association ordered to carry out the suggestions contained therein.

Two new members were admitted to the association. The committee appointed to audit the treasurer's account reported that account correct.

The following preamble and resolution were then offered:

WHEREAS, It has come to the knowledge of the millers of Pennsylvania that but a small portion of the flour sold in Philadelphia is inspected, while they are at all times made to pay at the rate of one cent per barrel on all forwarded; therefore be it

Resolved, By the State Millers' Association of Pennsylvania in convention assembled, that in the future we will demand a reduction of $1 per hundred barrels, if flour is not inspected; if it is inspected, we will require to accompany our settlement an inspector's certificate stating the number of barrels and brand and the grade passed.

The resolution elicited considerable discussion, and, on motion, was laid on the table.

The next resolution was as follows:

Resolved, That it is the desire of the association that the Senators and members from Pennsylvania in Congress be requested to support and urge the passage of the joint resolution now pending admitting foreign mill machinery intended for exhibition at the coming international exposition at Cincinnati, in June next, free of duty, and that every member of the association be requested to write to his representative in Congress, calling attention to the importance of immediate action thereon. Adopted.

It was moved that a commission of five be appointed to look after the interests of Pennsylvania millers at the international exhibition, and that the president and secretary be members of the commission. Agreed to.

A motion was made that an assessment of $2.00 each be made to carry on the association, and be paid at once, and the motion was agreed to.

A recess of ten minutes was taken to receive the assessment.

On re-convening the following resolution was offered:

Resolved, That the convention recommend to the various railroad companies of Pennsylvania that they give to receivers of flour facilities for inspection of same while in their depots, and that the secretary be instructed to inform each company of this action. Not agreed to.

It was moved that the meetings of the convention be held hereafter annually instead of semi-annually, and that the time be the first Tuesday of October of each year. Agreed to.

Mr. Schock moved, and it was agreed to, that a member of the executive committee be appointed to represent the association in the national association. President appointed W. L. Small, of York.

The motion that the *Milling World*, of Buffalo, be the official organ of the association was laid on the table.

The following resolution was adopted:

Resolved, That the committee on transportation request of the railroad companies the privilege of flouring wheat in transit with a reasonable charge for demurrage and switching.

It was moved and adopted that the next meeting of the association be held in Wilkesbarre, in October next. Messrs. D. M. Baer, of Huntingdon, and W. P. Duncan, of Phillpsburg, were unanimously elected first and second vice presidents respectively.

The standing committees for the ensuing year were then announced.

The thanks of the convention were tendered to Mr. Hunter for the use of his parlors, to Mr. Hoffer for the invitation to visit his mill, and to the newspaper reporters present.

On motion, the convention then adjourned.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The society met on Monday afternoon, February 2, at the usual hour, and was called to order by the President, Joseph F. Witmer.

The following members and visitors were present: Joseph F. Witmer, Paradise; Henry M. Engle, Marietta; M. D. Kendig, Manor; Calvin Cooper, Bird-in-Hand; Simon P. Eby, city; John H. Landis, Manor; Casper Hiller, Conestoga; Johnson Miller, Warwick; C. L. Hunsecker, Manheim; ex-Sheriff Adam Bare, city; J. M. Johnston, city; Dr. C. A. Greene, city; C. A. Gast, city; F. R. Diffenderffer, city; Dr. William Compton, city; W. W. Griest, city; Henry Kurtz, Mt. Joy; Peter S. Reist, Litiz; Albert P. McIlvaine, Paradise; Ephraim S. Hoover, Manheim; William McConsey, city; Israel L. Landis, city; Dr. S. S. Rathvon, city; Mr. Wolf, Millway; D. W. Graybill, East Hempfield; Levi S. Reist, Manheim.

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

Dr. Compton, of Lancaster, was nominated and elected to membership. Dr. C. A. Greene was also elected.

On motion the usual crop reports were dispensed with for the present meeting.

Large Trees.

Simon P. Eby gave the following dimensions of trees—the oak and walnut were recently cut down, the chestnut is still standing:

On the farm of A. Carpenter, in Warwick township, a chestnut tree, the circumference at foot of trunk, 27 feet; circumference of trunk three feet up, 19 feet; circumference around out at extremities of branches, 90 yards. Grain and grass grow under the tree up to trunk as well as in other parts of the field.

Two white oak trees, cut on same farm, respectively aged 251 years and 243 years.

A walnut tree aged 180 years on Israel G. Erb's farm, Penn township.

A chestnut tree with a circumference at foot of trunk of 23 feet; circumference of trunk 7 feet above ground, 19 feet 4 inches; circumference around extremities of branches, 59 yards.

Fruit Growing on City Lots.

Casper Hiller read the following:

Fruit growing in city yards and gardens has, owing to the frequent failure of fruit in the open country, become interesting and profitable. The superiority in city grown fruit in dry, unfavorable seasons, like the last, could be seen at the fair of the Lancaster County Agricultural and Horticultural Society. And this superiority is not only to be found in a few specially favored gardens, but applies generally, as the fine fruit raised by John K. Reed, Samuel Benefict, William Weidle, Harry Shultz, Benjamin Miller, Samuel W. Taylor, Daniel Smeych, John Shaum, and many others who are located in various parts of the town, abundantly proves.

Pears and grapes appear to be the kinds of fruit best adapted to city gardens. With a little attention, these could be raised in sufficient quantities to supply the home demand for fine table fruit.

The causes of this superiority of city over country fruit are probably three-fold. The principal one, I presume, is in the condition of the soil. This does not become heated by the sun, like in the open country; is shaded by buildings and fences, which do not drink up the moisture in the ground, but help to retain it.

The roots dip under the buildings, fences, under pavements, and often reach into drains, where plant food in unlimited quantities abounds. The second cause is wind protection. This causes a more even temperature. The buildings break the force of the wind, and this prevents that sudden and excessive evaporation from leaf and soil that is so injurious to fruit growth. In the open country, where there is no rain in July and August, the soil becomes dry to the depth of several feet, the fruit stops growing, becomes stunted or ripens prematurely, and then is of little value.

The soil in town lots from the two given causes, is not so easily affected, and hence the better ripening of the fruit. The third cause of fine fruit in town is also to some extent due to less insect depredations, the cultivators having those pests more under their control. Grapes do best in close yards, where strong winds are completely cut off by the surrounding buildings. In these, with a little extra care, the finer grapes, such as Catawba, Iona, Allan's Hybrid, and perhaps even Black Hamburg, could be successfully ripened.

The vines to do best should be trained on upright trellises, built a few inches off south or east side of the wall. In some of the most delicate varieties it may, perhaps, be necessary to use "coping," as the English call it. This is made of glass, two or three feet wide, and juts out from the wall like a porch roof. Another form of coping may also be used over upright trellises, away from buildings. The vines in both forms must be trained horizontally, and the fruit should be near the glass. This coping, in these wind-protected enclosures, acts almost as well as elaborate glass structures in the open ground.

H. M. Engle thought the essay excellent. There was little doubt the fruit grown in towns was better than that grown in the open country. Trees in cities have many advantages. Cannot country fruit trees also have some of these advantages? Shade and mulching will do much. It is high time that screens should be prepared by country growers.

S. P. Eby said the temperature in cities was always several degrees higher than in the open country, which is another advantage, but still he thought the country was the place to grow the best fruit.

Dr. Greene believed the first requirement of growing fine fruit was the necessary constituents in the soil. Moisture is another condition. Too much

water is not good. He alluded to a substance lately found in Schuylkill county which draws the moisture from the atmosphere and retains it around the roots over which it is placed. It has all the constituents of ordinary barnyard manure, with the addition of gypsum. Alum shale is what it is called. He related an experiment which proved prolific of good results. He also directed attention to the necessity of destroying insects on fruit trees.

Domestic Progress.

C. L. Hunsecker read a very lengthy essay on the above subject. Prices, transportation and progress in travel and in a thousand other directions were alluded to. Many statistics of many kinds were given, all of which were very interesting, but which would require too much of our space to reproduce in detail. It was listened to with close attention, and afforded many hints of which those present will no doubt avail themselves. The contrast between the methods of to-day and those of one or two hundred years ago was as forcible as it was truthful.

On motion, a vote of thanks was extended to Messrs. Hiller and Hunsecker, for their productions.

Discussions.

Levi S. Reist, to whom the question of planting forest trees had been referred, not being present, on motion, the question was continued until next meeting.

Does the Stock have any Influence on the Graft?

Calvin Cooper said the question has two sides. Certain stocks influence the size of trees; in some cases even the fruit is a little changed. It has, and it has not. The question is not definite enough to be answered definitely. The stock rarely affects the fruit.

H. M. Engle thought we had not the time to-day to discuss this matter. He referred to a Massachusetts report where there is an exhaustive discussion of the subject. It has been shown inconiestably that stocks do affect the grafts somewhat. He believed when grafts were put on old or bearing trees, the tree affects the graft.

Casper Hiller has had much experience in grafting, but with all his knowledge he was not prepared to discuss this question. He related some personal experiences going to show the stock has a considerable influence on the graft.

H. M. Engle thought there is a difference in the sap of trees; where the sap in the tree preponderates too largely over that in the graft it may be sufficient to work an influence.

Ephraim S. Hoover grafted a harvest pear on a wild stock; the fruit was like that of the graft in appearance, but the flavor seemed to be a mixture of the two kinds.

Dr. Greene said that as salt can be forced into a graft through the roots of the parent stock, if you force into the tree certain elements, you will also find them in the graft.

Calvin Cooper differed from some of the other speakers. He believes the leaves impart more of the flavor than the stock. You can put twenty kinds of apples on one stock, and they will all be different. If the stock had any influence, would they not all be alike? He believed the moving cause was the foliage.

H. M. Engle believed Mr. Cooper's theory was correct as a rule, but there are certainly exceptions to it.

John H. Landis said he had written to the Secretaries of all the various State Agricultural Societies for copies and had the pleasure of presenting those of North Carolina and Virginia.

A vote of thanks was extended to Mr. Landis for his efforts to procure the society these books.

Joseph F. Witmer, to whom was referred the question, "Is there sufficient evidence that ensilage is a successful method of preserving food for stock?" read a very lengthy essay, giving the results of the few experiments on this question that have hitherto been made in this county. He knew nothing of the matter himself. The opinion of some members of the society was, that for the present this method of feeding stock would not find much favor among our farmers.

The President said that if we mean to hold an exhibition next fall, it was time to announce the fact, so that we can make the necessary preparations.

Calvin Cooper also thought this matter should not be put off longer than next meeting.

M. D. Kendig made a motion that at the next meeting this matter be taken up. H. M. Engle amended it by instructing the Board of Managers to look about for a place to hold an exhibition so that they may report at the next meeting. Agreed to.

Referred Questions.

Root-crops, are they profitable? was referred to H. M. Engle for discussion at the next meeting.

The rain fall, as reported by H. M. Engle, was 2 15-16 inches for the month of January.

The society on motion then adjourned.

POULTRY ASSOCIATION.

A stated meeting of the Lancaster County Poultry Association, was held in the Agricultural Society's Room, City Hall, Monday morning, February 2nd.

The following members were present:

J. B. Lichty, Secretary, city; George A. Geyer, Spring Garden; Frank R. Diffenderffer, city; Charles E. Long, city; John F. Reed, city; Wm. A. Schornberger, city; J. M. Johnston, city; Henry Wisler, Columbia; H. H. Tshudy, Litiz; C. A. Gast, city; Frank Griest, city; S. F. Engle, Marietta; Henry Greider, Mount Joy; John Brickhart, Salunga; T. F. Evans, Lititz; Johnson Miller, Warwick; Jacob B. Long, city; Joseph F. Witmer, Paradise; Charles Lippold, city.

President Tobias being absent, Vice President Geyer was called to the chair.

Recording Secretary Lichty presented his annual report which was read, received and entered on the minutes. The report shows that the society, which was organized January 6, 1879, had held regular monthly meetings since that date, and two adjourned meetings, making 14 meetings in all; the aggregate of attendance at these meetings was 253; fourteen questions relating to the poultry interests were discussed; 137 members were elected of whom 93 paid their dues; receipts from all sources during the present year, $418.45.

Treasurer Evans presented his annual report which was read. That part of it referring to the late poultry exhibition shows the receipts from all sources to have been $517.49, and the balance in the hands of the treasurer $155.40.

Messrs. H. H. Tshudy, Jacob B. Long and John F. Reed were appointed a committee to audit the accounts of the secretary and treasurer.

The report of the executive committee of the late exhibition was read. It contains a detailed statement of the number and kind of fowls exhibited, the amount of premiums paid and other information.

The following propositions for membership were made and the nominees elected: John Grosh, Landis Valley; Dr. J. C. Brobst, Litiz; H. S. Garber, Mount Joy; Wm. D. Snyder, city; John H. Baumgardner, city; Linnæus Rathvon, city; Frank Griest, city; Jeremiah Rohrer, city.

The secretary read a communication from Rev. D. C. Tobias, returning thanks for the honor done him in his re-election as president of the society but respectfully declining the same.

The declination was accepted and the following nominations for president were made: S. S. Spencer, city; S. N. Warfel, Strasburg; B. J. McGrann, Manheim township; Chas. E. Long, city.

Under the rules these nominations lie over until next meeting.

Mr. Lippold made inquiry as to the donation premiums offered at the late exhibition; some of them have not yet been received by the exhibitors to whom they were awarded.

The secretary replied that he had notified all those who had offered premiums to forward them to those to whom they were awarded. He will again notify those who have not responded.

On motion an order was drawn on the treasurer for 75 cents in favor of Master Garber on payment for a pigeon belonging to him that escaped from its coop.

The especial thanks of the society were tendered to Secretary Lichty, the members of the executive committee, and several members outside the committee, for their disinterested efforts to make the exhibition a success.

The following questions were proposed for discussion at next meeting.

"How early in the season should we set hens?"

"Did the larger fowls receive enough premiums, compared with the awards to the smaller varieties, at the late exhibition."

FULTON FARMERS' CLUB.

The Fulton Farmers' Club met at the residence of J. R. Blackburn on January 3, and the meeting was called to order by the President, all the families of the members being represented except one. Visitors, Joseph Lincoln, Thomas P. King, Levi B. Kirk, Edwin Stubbs, Mr. Spence, John Evans, Ed. Brogan, Lamon Blackburn.

F. Tollinger exhibited one ear of corn, containing 1,680 grains, raised by a neighbor, Amos Smith; J. R. Blackburn, a very fine pumpkin, weighing 33½ pounds, raised on the Meadow Island.

1. How many members will raise tobacco next year? Answer: Only one.

2. What kind of treatment should young orchards receive? Answer: Work well while young, and manure, but not so heavily as to force too rapid a growth. Hogs cultivate an orchard better than ploughing. Wash the young trees with lime mixed with strong soap-suds. Keep the bark smooth.

The club was now invited to dinner, and therefore adjourned until afternoon.

The gentlemen, as is their custom, took a walk to view the farm, stock, etc., of the host. After returning to the house, an article, entitled "Churning," by Prof. J. B. Arnold, was read by the host, showing how every step requires care and skill, or the product will be injured. Also, that more injury is done by failiug in churning than by any other one thing. Jersey, with large globules, will churn as easily at 58° as native cows at 60°, or the Holstein at 62°. Not one in one hundred stops when he has churned enough, which is when the granules are hard enough to be handled without sticking together when washing, either in or out of the churn.

One of the members had difficulty in getting the butter separated from the milk.

3. Can any one give an instance when Jersey marl did good? Answer: Some of the members knew instances, and one had tried it without any good result.

4. Did any one use Powell's prepared chemical? Answer: An instance was related where enough to make a ton had been bought.

A recitation by Carrie Blackburn, entitled "O Sunny May, O Blue-Eyed May;" also, a communication from "The Old Woman," explaining how she and the old man have been annoyed with people talking about unnice folks, showing how some people will talk and slander their neighbors, and how some people borrow what every one ought to have. She, on one occasion, loaned her wash-tub and had to do her washing in a barrel. The old woman thinks she is hard to arouse, but judging from what has happened in the times that are passed, when the cat peeped around the corner of the house and then left without a farewell, we should say her disposition was not of the best.

Has the cutting away of the timber had any effect upon the rainfall of the country?

Great difference of opinion was expressed upon this question, and dates were given going to show that although many claim last season to have been the dryest, there have been other years when a longer time elapsed between the rainfalls than last, and streams that no one now living had ever seen dry, had been entirely so when there was an abundance of timber in the vicinity. Yet in Egypt they have rain where trees have been planted, and in Germany the rainfall is regulated in a measure by planting trees. One argued that countries where there were no trees were more subject to drouth and floods. One member gave 1792 as the date when there were 128 days without one drop of rain, and that two hundred years ago there were between 80 and 90 days without any rain.

Question for discussion next time:

Resolved, That women take more interest in agricultural affairs than men.

The club were appointed to bring literary exercises for the next time, to meet at Lindley King's, 7th of February.

LINNÆAN SOCIETY.

The Linnæan society held their stated meeting, Saturday, January 31, 1880, President J. S. Stahr in the chair. The preliminary business being attended to, the donations to the museum were examined and found to consist of six bottles of specimens in alcohol. One was a common house mouse, infested with a scurvy disease involving the tissues of the head, this being at least one of a-half dozen similar cases found during the last few years past in this city, and had been submitted to Dr. M. L. Davis, of Millersville, for examination. This mouse was given by E. J. Zahm, of this city. Two Batrachian specimens of the salamander family, the *Notopthalmus minnatus*, per Prof. Stahr. The *Notophthalmus millepunctatus*, per J. Stauffer; bottle larvae of the Io moth. Two gold fish; a small, rather peculiar sun fish; a package, No. 40, of prepared corundum from Chester county, per Mr. Rathvon; a fine specimen of brown oxide of iron (Hematite,) per Mr. C. M. Hess, of Quarryville; a large sized stone Indian implement of the stone age, found in the grounds of the Woodward Hill cemetery, this city, per Mr. Wm. Deverter, a kind of wedge or pick-axe; a number of very large chestnuts, grown by Mr. David Herr, from specimens received from France. These are on an average three times as large as our native chestnuts.

Additions to the Library.

Proceedings of the American Philosophical society of Philadelphia, vol. XVIII., No. 104, July and December, 1879. Pamphlets, one on butterflies and moths, per Mr. H. Strecker, Reading, Pa. Reports upon the condition of crops, December 1st, 1879. U. S. Patent Office *Gazette* up to January 27th, 1880. Specimen papers of the *Scientific American* and contents of supplement, as also a small hand-book. THE LANCASTER FARMER for January, 1880, besides books, catalogues and circulars. Historical section, 4 envelopes containing 62 scraps of historical interest, per S. S. R.

Papers Read.

Dr. M. L. Davis simply read from a slip notes and observations on the diseased mouse. As the matter was of interest the doctor was urged to write them out at full length and deposit the copy among the archives of the society. The disease is known as the *Porrigo favosa*, well known as a species of fungus, analogous to the fungus, called yeast plant. Mice, in snuffling around breweries or larders, may come

in contact with the sporules and become inoculated, and they may impart it to eats, as eats, dogs and children are occasionally subject to this fungus growth.

Dr. Rathvon read a paper entitled, "Zoological Notes," No. 536, descriptive of the salamanders and their relations, and some personal observations of his own at "Hunter's Lake," in Lycoming county, Pa., in 1847.

Scientific Miscellany.

Rev. J. S. stahr, Rev. Dr. J. H. Dubbs, M. L. Davis, M. D., Wilmer Bolton and J. Stauffer discussed fungoids and their prolific growth. Dr. Rathvon referred to a late author, who proposes to destroy noxious insects by inoculating them with a kind of fungus, such as is known to kill flies, grasshoppers, &c., inducing fatal epizootic disease among them. A word of caution might be seasonable on this subject. Mrs. Zell presented a flower for a name. It evidently belongs to the natural order *Acanthaceæ*, and no doubt one of the 137 species of Justicea, now divided into different genera.

AGRICULTURE.

A Good Farm Stockfood.

Cornfodder, as we term it, is a very good food for farm stock, when cut at the proper time and well prepared for the barn. I do not think this fodder has been appreciated at its true value, though there has been much thought and writing on the subject. When I was a boy I never saw an acre of corn treated in the same manner that every farmer practices now in Vermont, as far as I know.

It was not uncommon in my young days in New Hampshire for farmers to let the bulk of their cornfodder stand until it was thoroughly ripened or killed by successive frosts. The top stalks were removed about September—first of the month in average years. When the corn commenced to harden these stalks were bound in small bundles and stocked on the adjacent grass land, and when cured were very nice fodder. But the bulk of the fodder still remained, and by exposure and ripening was ruined. When the corn was harvested cattle would eat it, and so they will dry corn-cobs, where not one per cent. of nourishment can be found. One man says he plants a small kind of corn, that the fodder may also be of a fine quality. I think I can suggest an improvement on his plan.

I have a kind of eight-rowed corn which is as large as any of the kind I have seen. I get over a hundred bushels of ears per acre with ordinary culture. But the stalks are small, not growing much if any more than six feet high. A year or two since I had very good luck in curing them in our way and fed them to my oxen and cows, and I could easily carry in my arms at once every stalk they left.

My usual way of preparing this fodder is as follows: Cut the corn at the ground when about half-glazed or hardened; while the stalks are yet green bind about seven or eight hills in a bundle, and put from three to five bundles in a shock; set them firmly on the ground and put a band around the top of the shock. After a short rain or two will not injure them. When sufficiently cured husk them in the field, or cart to the barn and husk there. You will be pleased with the corn, which will be well ripened and ready for the crib.

I usually cut my oats when the straw is about half-turned, and if I have good luck in curing it makes very palatable food. After threshing, I take of straw and cornfodder and with alternate layers mow them in some convenient place, and feed out in November and December. There will be but little waste, and cornfodder must be very dry if this mow does not mould, as it probably will in most cases. But the cattle do not mind the mould, and eat this prepared fodder readily and do as well as on good hay. Farmer can feed from a mow of cornfodder as above, and from a mow of hay alternately if they prefer.—*Germantown Telegraph.*

Bone Dust.

Bone dust, like barn yard manure, does not immediately yield up its nitrogen or phosphate acid to plants. The bone phosphate of lime is insoluble in water containing carbolic acid. The gelatine of the boues would soon decompose in a moist, porous, warm soil, provided it was not protected by the oil and hard matter of the bones. Steaming removes the oil, and reducing the bones to as fine a condition as possible is another means of increasing their availability. Another good method is to mix the bone dust with barn yard manure and let both ferment together, and I am inclined to think this is the simplest and most economical method of rendering bones available. The bone dust causes the heap of manure to ferment more rapidly, and the fermentation of the manure softens the bones. Both the manure and bones are improved and rendered richer and more available by the process. One ton of good bone dust contains about as much nitrogen as $8\frac{1}{2}$ tons of fresh stable manure. But one ton of manure contains more potash than five tons of bone dust.

Forest Leaves for Stable and Yards.

We don't think that farmers set as much value upon forest leaves as they should do. They possess many good qualities. They have a pleasant smell, absorb the moisture, and through the winter are converted into excellent manure. They can be most conveniently gathered after the first snow, or at least before the winter blasts have scattered them. They then lay compactly, and being moist can be handled with great facility. A cart with a few standards stuck in the sides will hold a considerable quantity; and the best thing to gather them or load them with is a wooden hand-rake; a wooden four-tined straw-fork is also very handy when the leaves are moist. They can be gathered, too, when other labor about the farm is slack. There are leaves, also, about the garden yard, and orchards, that should be gathered and used. They are good for covering vines, cabbage, and half-hardy shrubbery after being laid down. They do not admit much moisture and are an excellent protection against frost.

Wonders of Broom Corn.

Broom corn is likely at no distant day to revolutionize the breadstuff supply of the world. A process has been discovered by which the finest and most nutritious flour can be made from the seed to the extent of one half its weight, and leave the other half a valuable food for making beef and milk. The average yield per acre is three hundred bushels, and in many instances five hundred bushels, or thirty thousand pounds have been secured.

Nor does it exhaust the soil as Indian corn, from the fact that it feeds from the deeper soil, and assimilates its food from a cruder state.

It belongs to the same genus as the sorghum saccharatum, or sweet cane, commonly known as sorghum, which as an article of food is growing rapidly in public esteem, and from the seed of which a most nutritious flour can be made.—*Western Grocer.*

HORTICULTURE.

Spring Cultivation of Strawberries.

Mr. E. P. Roe, the horticulturist, in his *Scribner* series on small fruits, writes as follows of a mooted question in the culture of strawberries: I have now reached a point at which I differ from most horticultural writers. As a rule it is advised that there be no spring cultivation of bearing plants. It has been said that merely pushing the winter mulch aside sufficiently to let the new growth come through is all that is needful. I admit that the results are often satisfactory under this method, especially if there has been deep, thorough culture in the fall, and if the mulch between and around the plants is very abundant. At the same time I have so often seen unsatisfactory results that I take a decided stand in favor of spring cultivation, if done properly and sufficiently early. I think my reasons will commend themselves to practical men. Even where the soil has been left mellow by fall cultivation, the beating rains and the weight of melting snows pack the earth. All loamy land settles and tends to grow hard after the frost leaves it. While the mulch checks this tendency, it can not wholly prevent it. As a matter of fact, the spaces between the rows are seldom thoroughly loosened late in the fall. The mulch too often is scattered over a comparatively hard surface, which by the following June has become so solid as to suffer disastrously from drought in the blossoming and bearing season. I have seen well mulched fields with their plants faltering and wilting, unable to mature the crop because the ground had become so hard that an ordinary shower could make but little impression. Moreover, even if kept moist by the mulch, land long shielded from sun and air tend to become sour, heavy and devoid of that life which gives vitality and vigor to the plant. The winter mulch need not be laboriously raked from the garden bed or field and then carted back again. Begin on one side of a plot and rake toward the other until three or four rows and spaces between them are bare; then fork the spaces or run the cultivator—often the subsoil plow—deeply through them, and then immediately, before the moist, newly-made surface dries, rake the winter mulch back into its place as a summer mulch. Then take another strip and treat it in like manner until the generous impulse of spring air and sunshine has been given to the soil of the entire plantation.

A New Nut.

There is a new *nut* which has just come "to the surface." It is of Chinese origin, and so far as we know has not yet made its appearance in the United States. It is called the "Water Nut," which grows and matures in still, clear water of from one to two feet in depth. It is technically called *Trapabicornis* (Ling Kok of the Cantonese). The best situation for it is where the water is subject to a gentle overflow by the tides, "but it grows well in ponds beyond the reach of tides." This, of course, makes it more popular, and so does its earliness, as it is ready for consumption as early as May, and is in the market up to August. "They are eaten by all classes of Chinese, and are also relished by Europeans. They are sometimes eaten raw, but generally in a cooked state. They are simply boiled, and black skin is taken off either before or after boiling, like potatoes. On European tables they are served up with sauce." Indeed! Now what do we want more but for some enterprising speculators here to take it in hand and make a fine penny out of it? The capital will be very small. The cost of importation will be little, the principal expense being a few thousand pamphlets, with well-executed "cuts," representing the water nut in its various stages of maturity, its appearance before and after cooking, before and after the black skin is removed, and when it is placed on the Yankee table with the aforesaid sauce.

Don't Crowd the Fruit Trees.

In setting out fruit trees, it is not uncommon to see insufficient allowance made for their future growth; hence, when the years have passed and the little saplings have attained their full size, their spreading branches almost, if not quite interlace, excluding needed sunlight and air from the lower branches and bringing the roots into too near neighborhood. It has been observed that the lower branches of trees planted in this way produce inferior fruit, while the upper branches—receiving abundance of sun and air—give fruit of good quality; also that the outer rows of these trees have finer fruit than the inner rows. These facts teach a lesson likewise in pruning. Branches should not be allowed to grow so thickly as to exclude a fair share of light and air from any part of the tree. The distance apart the trees should be set must be determined by the climate and by the kind of tree; the size of even the same variety of tree varies more or less with the climate. Less complaint would be heard about non fruiting years if a generous belt of sunlight was allowed between the rows of the trees, and the soil annually supplied sufficient food for material to restore that used in the production of large crops of fruit.

Plant Apple Trees.

While we recommend farmers to plant apple trees, we do not wish to be understood as underrating all other kinds of hardy fruits, for all kinds of hardy fruits should be found on every farm. But, then, the apple is the king of fruits. Its season is the whole year—late keepers being on hand, if proper care has been taken of them, when the early varieties again ripen. It can safely shipped all over the Union, and to Europe even, as it now is by the million barrels almost annually. It forms, or should form, a part of one's daily food. It is healthful, keeping the bowels in proper condition, acting upon the liver and warding off bilious diseases. It makes nice preserves, jellies, pies, dumplings and other desirable dishes. The tree is long-lived, giving fruit for fifty years or more. No farm, no home, is complete without a large orchard of well-selected varieties of apple trees. Every farmer who has not a good orchard should select the ground for one, plow and harrow it, lay it off for the trees, dig the holes and plant the trees in early spring.

DOMESTIC ECONOMY.

Polishing Furniture.

To clean furniture, and especially the surface of a finely polished piano, we will give our lady friends a recipe better than any in the books. Take a wash-bowl full of tepid water, and a little fine toilet soap, and a tablespoonful of sweet oil. Dip a piece of old flannel in this, and apply it to the wood, rubbing vigorously for awhile; then exchange this for a piece of old, soft, fine cotton (not linen, as that leaves its fibres of lint), and rub with this awhile, finishing with a fresh piece of the same cotton until the liquid application is thoroughly removed. All these successive applications to be made to one particular spot of the wood no larger than can be worked with a single stroke of the arm, and that to be finished before a fresh place is treated. When the whole piano has been done over in this way (it should take two hours at least to do it well), it will look as good as new, and far better than if refinished by an ordinary workman. This is the best possible application for that purple cloud that comes over a polished wood surface in damp weather. Of course a judicious lady will be very sparing of the liquid, although she has a wash-bowl half full of it, and will not use enough to drip on the carpet, or to penetrate to the interior of the piano.—*Exchange.*

Bloody Milk.

In reply to a correspondent who inquires for the cause and remedy for bloody milk, the *American Agriculturist* says: "The milk may be found mixed with blood, without any distinct attack of garget. Garget consists of inflamation and congestion of the udder, or part of it, and is accompanied by constitu-

tional disturbance, generally fever. But the milk may be tinged with blood from other causes. Violent jerking of the udder, by racing about, a blow, cold in the organ, or other similar accidents, may cause it, and with some heavy milkers, which are subject to it occasionally the cause seems to be over-excitement of the secretory apparatus of the udder. Generally a cooling purgative, or a saline diuretic (such, for instance, as eight ounces of salts, or four drams of saltpetre, or both together,) with rest and frequent careful and gentle milking, will effect a cure when the latter is the cause. For garget similar but more active treatment is needed."

Measuring the Height of a Tree.

When a tree stands so that the length of its shadow can be measured, its height can be readily ascertained as follows: Set a stick upright—let it be perpendicular by the plumb-line. Measure the length of the shadow of the stick. As the length of its shadow is to the height of the stick, so is the length of the shadow of the tree to its height. For instance, if the stick is four feet above the ground, and its shadow is six feet in length, and the shadow of the tree is ninety feet, its height will be sixty feet (6:4:: 90:60.) In other words, multiply the length of the shadow of the tree by the height of the stick, and divide by the length of the shadow of the stick.

Treatment of Frozen Plants.

In times of severe cold, the more tender plants in the window will sometimes be chilled and frozen. Such plants should not be put near the stove, to be thawed out; but kept where the temperature is a trifle above the freezing point that the thawing may be gradual, and in the dark that no deleterious chemical changes may take place. If severely touched with frost, it is best to remove the frozen parts, that new stems may be forced out from the buds below. Water freely, and finally bring them to the ordinary temperature for house plants—65 to 70 degrees.—*American Agriculturist.*

To Preserve Shingles.

Petroleum applied to shingles adds greatly to their durability. The best way is to dip the shingles in the oil, taking a handful at a time, and leaving them in a tub a few minutes. Saw an oil barrel across the middle, and it will make two good tubs, one for holding the oil, and the other for the shingles to drain in. If well seasoned, they will take the oil more readily than otherwise. A barrel of oil will give a good soaking to seven thousand or eight thousand shingles.

Ventilation of Bed Rooms.

Each inhalation of pure air is returned loaded with poison; a hundred and fifty grains of it is added to the atmosphere of a bedroom every hour, or twelve hundred grains during the night. Unless that poison-laden atmosphere is diluted or removed by a constant current of air passing through the room, the blood soon becomes impure, then circulates sluggishly, accumulating and pressing on the brain, causing frightful dreams.—*Ex.*

Tar for Warts.

A farmer writing to an exchange, says: "I had a mare some years ago that had a large wart on her side, where the harness rubbed and kept it sore. In summer the flies made it worse. To prevent this I put on a good daub of tar, and in a few weeks the wart was killed and disappeared. I have frequently tried it since on cattle and horses, and seldom had an occasion to use a second application. The remedy is simple and effectual."

Household Recipes.

Mince Meat.—Beef's heart, beef's tongue, the hock or the neck or the round may be used. Boil the meat until it is thoroughly done and mince it fine. For every pound of meat allow a pound of raisins, stoned and chopped, half a pound of dried currants, washed dried and picked over; quarter of a pound citron, half a pound of suet, a heaping tablespoonful of salt, two heaping cups of brown sugar, the grated rind and juice of two lemons, one cup of molasses, three of boiled cider, two heaping tablespoonfuls of mixed spice, and twice as much chopped apples, by measure as of chopped meat. Fruit syrup may be used instead of cider, and butter instead of suet. Mix all the ingredients, save the apples, and when the pies are to be baked, mince the apples and add them. The flavoring may be changed to suit the taste.

Custard Pie.—Beat the yolks of four eggs very light, then the whites, then both together. Spill a level teacupful of sugar into the eggs and beat all well. Add gradually a quart of the richest milk, if it is half cream all the better, and stir thoroughly together, add a level teaspoonful or more of any flavoring essence. If spice is used it should be beaten into the egg before the milk or sugar is added to them. Put the deep pie plates (covered with paste before the eggs are beaten) into the oven and with a cup or ladle fill them carefully to the rims. Bake till the custard is firm. Cover if necessary with a pasteboard or thick paper if the oven is too hot. This is from Mrs. Whitney's "Just How."

Lemon Pie.—Two lemons, six eggs, two teacupfuls of sugar, two tablespoonfuls of flour, one teacupful boiling water, rich pastry for lining pans. These materials will make two pies. Grate off the yellow rind of the lemons for flavoring, throw away the thick white skin, cut up the remainder of the lemon very fine, being careful not to loose the juice. Add to this the sugar, the yolks of six eggs well beaten, then the flour, and lastly the boiling water. Pound the mixture into the lined pie pans and bake. Prepare an icing with the whites of six eggs and when the pies are a light brown spread it smoothly over them; return again to the oven and bake a light brown.

Apple Jelly.—A beautiful and delicious jelly may be made of any sour red apples such as Spitzenbergs, Baldwins or Northern Spys. Wash, quarter and core without paring and cook until the whole mass has a red tinge and is soft. Pour into a colander, drain off the juice and run it through a jelly-bar. Boil again one-half hour. Measure and to every three cups of juice allow two cups of sugar and boil again fifteen minutes. If highly-flavored jelly is liked, lemon or vanilla may be added before it is turned into the cups. Most jelly recipes give an equal measure of sugar and fruit juice, but in making jelly of winter apples I have found two of sugar to three of fruit give a good firm jelly that will cut smoothly with a knife.

Pound Cake.—One pound of butter, one pound of loaf sugar, one pound of eggs, one pound and a quarter of flour. Put the butter into a clean pan, about milk-warm, and stir it round until it becomes cream; then add the sugar, which must be pounded very fine, and stir them together for a few minutes. Break the eggs in and beat them all together for five minutes; then gradually add the flour and six drops of essence of lemon; stir them lightly together, put in a buttered mould and bake in a cool oven. This cake is good, but plain. If a richer one is desired, put in one pound of currants, half a nutmeg, grated, and a quarter of a pound of candied lemon, cut into thin slices.

Boston Jumbles.—Four ounces of butter, the same quantity of sugar and of sifted flour. Cream the butter and sugar, add the yolk of one egg beaten white, and flour, rosewater to taste; drop on tins covered with paper and buttered; bake in a quick oven about eight minutes; ice them when cold. Dust with flour before iceing, rub off all that will not stick. The flour makes the iceing adhere to the cakes.

Rice Pudding Boiled.—Boil a large cupful of rice in water for five minutes, drain off the water and put the rice on again in milk; let it boil until soft, stirring occasionally to prevent it from burning; when done put into a basin with a part of butter, the zest of a lemon, a little nutmeg, half a glass of brandy; sweeten to taste; add five eggs; boil for three-quarters of an hour in a basin; serve with marrow pudding sauce.

Almond Pastry.—Pound three ounces of almonds, one-quarter pound of butter, two ounces of loaf sugar, with a little rose water till it becomes a thick paste. Spread it on a buttered tin, bake in a slow oven. When cold divide into eight pieces, put a spoonful of preserves on each piece and cover with whipped cream.

Calf's Liver Broiled.—Cut the liver into thin slices, wash it and let it stand in salt and water for half an hour, to draw out all the blood. Season with salt and salt and pepper, and broil, basting frequently with butter. Either fried or broiled liver is more delicate if, after it is cut into slices for cooking, it is parboiled in salt and water.

Potato Pie.—Boil and sift two pounds Irish or sweet potatoes, grate a lemon and squeeze the juice into them while hot. Rub a pound of butter and one pound of sugar to a cream, to this add the well beaten yolks of six eggs, the potatoes, half a nutmeg grated, a quart of rich milk, and lastly the whites of the eggs beaten to a stiff froth. Bake with an undercrust only.

Pearl Barley Pudding.—Wash half a pint of pearl barley, put it into a stewpan with three pints of milk, a quarter of a pound of sugar and a little nutmeg at the corner of the stove; when properly swelled, take it out, flavor to taste, add four eggs and boil in a basin for one hour, serve with black cherry arrowroot sauce.

Pistachio Diplomatic Pudding.—Chop very fine a quarter of a pound of blanched pistachios; mix with half a pint of clear jelly; mask a plain mould with all this, and fill up with a custard, as for diplomatic pudding, mixed with a quarter of a pound of finely chopped almonds and flavored with a glass of noyeau; cold German sauce.

Hickory Nut Macaroons.—Make frosting as for cake; stir in enough pounded hickory-nut meat, with mixed ground spice to taste, to make convenient to handle. Flour the hands and form the mixture into little balls. Place on buttered tins, allowing room to spread, and bake in quick oven.

Plain Pastry.—With one pound of flour sift four times two teaspoonfuls baking powder, then add a teaspoonful of salt and rub into the flour six ounces of butter with very cold water; make this into a paste, roll thin. This pie crust is good for dyspeptics and those who do not care for rich pastries.

Live Stock.

Teething in the Horse—Wolf Teeth.

In connecting the teeth with diseased eyes we are not following the foolish prejudice which attributes all troubles of sight to the wolf teeth. These teeth are harmless enough; yet the popular prejudice has a foundation which it would be well for horsemen not to ignore. Most diseases of the eyes occur at that period of life when the milk teeth are being most rapidly shed and the permanent teeth are coming up. To suppose that a horse suffers nothing in cutting his teeth is a great mistake, as is shown by the frequently slow and painful mastication of some young animals by the occasioned dropping of food in a half-chewed condition, and by the heat, redness and swelling of the palate and gums. That red, swollen and tender state of the roof of the mouth behind the front teeth, familiarly known as "Lampas" is but an indication of this teething trouble, and in not a few instances it renders the animal feverish, weak and by virtue of the general congestion of the head, strongly predisposed to inflammation of the eyes. The wolf teeth are in the mouth during the greater part of this period of teething, and are usually shed toward its completion; so that once it is hinted that these are the cause of the trouble with the eyes, the owner, looking into the mouth seems to find ample confirmation of the statement. The wolf teeth are, however, the most harmless in the mouth, having long ago reached their full development, and are but slightly inserted in their sockets, while the great and dangerous irritation attends on the cutting of the large grinding teeth, and, in the male, of the tushes. The presence of the wolf teeth in the mouth at this time is an accident, and not an injury. The temporary recovery often following their removal would have taken place all the same had they been left in the mouth, and a later attack is just as likely as if they were present. The excitement attendant on teething is natural; what we should guard against is its excess. Any costiveness of the bowels should be corrected by the feeding, or, if necessary, by one ounce of Glauber's salts daily. Teeth pressing painfully beneath tense, resistant, painful gums indicate the need of the lancet; teeth entangled on the crowns of their successors should be removed; all excessive swelling, redness and tenderness of the gums demand lancing; and, finally, all unnecessary excitement or exhaustion should be avoided.*National Live Stock Journal, Chicago.*

Ventilating Stables.

Many stables require no ventilation, as the cracks about the doors and windows, and the openings in the side walls, always admit all abundant supply of fresh air. But when the wainscoting, doors, and windows are as tight as in a well finished dwelling-house, some provision must be made for the escape of foul air and the inflow of pure air. So long as the foul air does not escape from an apartment, pure air cannot enter. In some stables flues about a foot square extend from the ceiling to the roof. But foul air will not escape through such flues unless pure and colder air can find an entrance near the floor of the stable. Pure air will enter such holes so gradually that no draft will be produced. Then as the colder air enters, the foul air will escape through the flues. In order to ventilate any apartment by opening windows, the upper sash should be lowered, and the lower sash should be raised. By this arrangement the cool air will flow into the room beneath the sash. Let it be borne in mind that one cannot fill his sleeping apartment or stable with pure air so long as the space is occupied by foul air. Horses like to thrust their noses out of the stable, through a small window, so as to breathe the pure air. Horses will endure very cold weather without injury, provided the apartment is kept dry and full of pure air. It is vastly more injurious to a horse to breathe over and over again the foul and warm air of a close stable, than to inhale very cold air when the mercury indicates zero. Foul air will always rise into the story above the stable, provided there are openings or flues through which it may escape into the atmosphere. A great many owners of fine and beautiful horses damage the health of their animals for want of proper ventilation. When the coat and skin of a horse are dry, there is no danger that the animal will take cold by inhaling very cold air. But when he is warm and sweaty, the groom cannot be too careful of horses until the hair and skin is quite dry.—*S. E. T.*

Fattening Sheep.

An Ohio sheep raiser, writing to the *Rural New Yorker*, says: "Sheep picked out for the butcher should be fed generously and regularly, and upon this point too much stress cannot be laid. Care should be taken, however, to give the sheep only just enough for one meal at each feeding time. If they are given superabundance of hay they soon learn to be particular in selecting the best part only; and if there is not enough of this at one feeding time, they will wait half hungry for the next. My own experience agrees with that of most successful sheep owners, that fattening cattle should be fed three times a day, though some of my neighbors think twice often enough. It is also very important that the sheep should not be allowed to suffer from want of water; neither should they lack a supply of salt; for although salt is not so necessary to them in the winter as in summer, still they will thrive better if it is fed to them at least once a week at all seasons."

Catarrh in Sheep.

Sheep run at the nose sometimes because of cold, but often it is chronic catarrh, and is not easily cured. If they are made to inhale the steam from hot vinegar or a decoction of hops, they will throw out a great deal of mucus which will be loosened by inhalation. The steam may be made by dropping a live coal into a vessel containing the liquid, or by inserting a hot iron. After the mucus has been discharged, smear the nostrils with pine tar. Scotch snuff dropped in the nostrils will cause the sheep to throw out the mucus, but this remedy is not so effective as the steaming. A hood may be put on the head of the sheep to prevent the steam from escaping, and the head of the animal must be held directly over the vessel. Sheep affected with catarrh should not be exposed to cold storms or cold winds, as either will increase the malady.

Bonner's Horses.

The folowilng is the price which Bonner paid for some of his horses: Rarus, $36,000; Dexter, $33,000; Goldsmith Maid, $35,000; Grafton, $15,000; Socrates, $26,000; Tattler, $17,000; Gen. Knox, $10,000; Pocahontas, $45,000; Jay Gould, $35,000; Startle, $20,000; Lady Thorn, $30,000; Lucy, $25,000; Rosalind, $19,000; total, $340,000. There is $340,000 worth of horses, besides some forty more of choice and high-priced ones which he has in his pastures and studs. He has a sort of mania for high-priced horses, which can be of little value to him, except to gratify his ambition to own more good horses than any other living man.

ENTOMOLOGICAL.

The War on Insects.

Cut-worms—Where cut-worms are troublesome in the field, a very old and at the same time very good remedy is to entrap them in holes made near the plants, or hills, if in the cornfield. An old rake handle tapered at the end so as to make a smooth hole five or six inches deep, or more, will answer very well for this purpose. In the morning the worms that have taken refuge in these holes may be crushed by thrusting the rake handle into them again, and the "trap" is set for the next night. It is always well in planting to make provision for the loss of a stalk or two by cut-worms or other causes, as it is easier to thin out than to replant.

May-beetles—These are the perfect insects of the white grub, so destructive to lawns and sometimes to meadows. A French plan for destroying, or rather catching, the cockchafer, a very similar insect, is to place in the centre of the orchard after sunset an old barrel, the inside of which has been previously tarred. At the bottom of the barrel is placed a lighted lamp, and the insects circling around to get at the light strike their wings and legs against the tarred sides of the barrel, and either get fast or are rendered so helpless that they fall to the bottom. Ten gallons of beetles have been captured in this way in a single night.

Slugs—English gardeners place handfuls of bran at intervals of eight or ten feet along the border of garden walks. The slugs are attracted to the bran, and in the morning each little heap is found covered with them. The ground is then gone over again, this time the operator providing himself with a dustpan and small broom and an empty bucket, and it is an easy matter to sweep up the little heaps and empty them, slugs and all, into the bucket. In this way many hundred have been taken in a single walk, and if a little salt and water be placed on the bottom of the bucket the slugs coming in contact with it, are almost instantly destroyed.

Ants—When these insects are troublesome in the garden fill small bottles two-thirds with water, and then add sweet oil to within an inch of the top; plunge these into the ground near the nests or hills, to within half an inch of the rim, and the insects coming for a sip will get into the oil and perish, as it fills the breathing pores. The writer once entrapped in a pantry myriads of red ants in a shallow tin cover, smeared with lard, the vessel having accidentally been left in their track. Another means of entrapping them, suggested to me by Professor Glover, many years ago, is to sprinkle sugar into a dampened sponge near their haunts to attract the insects. When they have swarmed through the sponge it is squeezed in hot water, and the trap is reset until the majority of the insects are killed.

Aphis—A remedy for plant lice upon the terminal shoots of rose bushes (or similar hardy plants,) said to work like a charm, is as follows: Take four ounces of quassia chips and boil for ten minutes in a gallon of soft water. Take out the chips and add four ounces of soft soap, which should be dissolved in it as it cools. Stir well before using, and apply with a moderate sized paint brush, brushing upward. Ten minutes after syringe the trees with clean water to wash off the dead insects and the preparation, which otherwise would disfigure the rose trees.

Scale—A French composition for destroying scale insects, plant lice, etc., on fruit and other trees, is as follows: Boil two gallons of barley in water, then remove the grain (which may be fed to the chickens) and add to the liquid quicklime until it approaches the consistency of paint. When cold add two pounds of lampblack, mixing it for a long time, then add a pound and a half of flowers of sulphur and a quart of alcohol. The mixture is applied with a paint brush, first using a still bristled brush to remove moss, etc. It not only destroys the insects but gives the bark greater strength.—*Chas. R. Dodge.*

How to Get Rid of the Pests.

Our excellent contemporary, the *Hub*, publishes the following account of the wood-destroying beetle (*Lyctus*) which Charles Evans, Cleveland, Ohio, communicates to that paper:

Of the multitude of insects which devour plants and trees, some attack only the leaves; others the trunk, and others the roots or various other parts. The nettle is infested by no less than forty species of insects, which are born, live and die on its stems. The oak alone has one hundred and eighty-four species, and the hickory is the exclusive home of numerous tribes of insects. One particular species which infests the hickory is the *Lyctus*. This is the chief pest of the carriage wood-shop, and causes more trouble than any other insect in shops where second-growth hickory is used. This beetle is of a dark chestnut-brown color, and has eleven jointed antennæ, club-shaped at the outer end. They then undergo transformation, and eat through the shell, and return to the outside as perfect beetles, in the spring or early summer, to reproduce and carry on their work of destruction, leaving small pin holes in the wood as evidence of their exit. Some call this trouble the "powder-post," and others simply speak of the timber as "worm eaten." Some think that the worms breed in the wood, but this is an error, as investigation clearly proves.

The best method of destroying these pests is to destroy every piece of worm-eaten timber before the month of March. If any man in the shop finds the wood he is working is infected, instead of putting it in a corner and saving it, let him immediately use it for firewood, or otherwise destroy it; for if it be left in the shop it will surely help to continue the pests another year.

Timber cut in the month of August is less liable to be attacked by them, as it then has less sap than when cut in the spring or fall. With a little care in selecting timber, buying only that cut in August, and using caution and foresight in the shop and lumber shed, they may be almost if not quite got rid of; but if left to themselves, they will very soon spoil every piece of second-growth hickory about the establishment.

Lice on Cattle.

A correspondent of the *Farmers' Advocate* says: "Some ten or twelve years ago an agricultural writer observed his bull to be free from lice, but not so the rest of his cattle; and, thinking over the matter, he came to the conclusion that the habit of pawing dirt over himself must have the effect of keeping the lice off the bull, and he tried dry earth on the rest of the cattle with the best effect. Ever since reading the above, I have used nothing but dry earth, and have repeatedly put it on cattle having lice, and have found it perfectly efficacious, both as a preventive and a cure. If in winter I find it needed, and cannot get it otherwise, I go into my cellar and obtain a few quarts (no danger of using too much), and dry it on the stove; I then sprinkle it over the back from head to tail, and, the earth working in and through the hair, destroys all lice. I believe the earth to be just as efficacious, less dangerous and less expensive than tobacco or any of the acids recommended."

Destruction of Weevil.

The leaves of the elder strewed among grain will effectually preserve it from the ravages of the weevil; the juice will also kill maggots. The leaves scattered over cucumbers, cabbages and other plants subject to weevil ravsges effectually shield them.

POULTRY.

Poultry Interest of America.

Noticing the rapid development of the poultry interest in this country, a New York correspondent of the *Country Gentleman* writes:

A glance at a few simple statistics will surprise even those who have heretofore considered themselves posted. Mark the change in a few years. Ten years ago not a paper in the country was published in the interests of poultry, to-day there are more than a dozen, with a combined circulation of upwards of thirty thousand subscribers. We can add to this nearly a hundred agricultural papers, which devote a department to this now important branch of farm industry. A few years ago, there might have been found a breeder here and there in the Eastern States; now they may be found in every part of the country, and are numbered by the tens of thousands. Then not an exhibition was made; to-day there are already over forty advertised to be held in various parts of the country, and as many more will be held later on. Even Oregon holds its State exhibition. In every New England State, there will be from two to half a dozen exhibitions, and in New York, Pennsylvania, Illinois and Indiana, there will be six to ten each, and sixteen States are represented in some way. The cash premiums alone at these exhibitions will exceed one hundred thousand dollars.

That this interest at the present time is growing more rapidly than ever before, is apparent on every side. With the improvement that is now taking place in business circles in every part of the country, the interest in fine stock including poultry, will also secure a firmer hold. The good prices of the past will be fully maintained in the future, and really extra choice specimens will yet find purchasers at the figures obtained in England, where the "gold cup" prize Black Red game cockerel, at the Crystal Palace exhibition in 1877, sold for £100 10s., nearly $500. Within two months, $100 has been offered in New England for single birds of last season's breeding.

Pickings From the Poultry Yard.

In no case breed from sickly or weak constitutioned fowls, as your chicks will be worthless and also bring disease.

Fowls with canker or roup will communicate the disease to all the rest of the flock if allowed to use the same drinking vessel.

Ducks and geese should always be scalded, and steamed by covering up with a blanket for a short time, before picking; in other respects handle as turkeys and chickens.

Cayenne pepper, ginger or mustard for fowls is quite beneficial. When added to their food it will stimulate egg-production, increase their vigor and make them feel well generally.

Young and quick-fed animals have more water and fat in their flesh, while older and well-fed animals have flesh of a firmer touch and a richer flavor, and are richer in nitrogen. The former may be more delicate, the latter will be more nutritious.

Cabbage is best given poultry whole, hung up by the stalk. At first it may not be touched, but when one fowl begins to peck at it, the rest will be tempted to keep on until little remains. Being suspended it does not waste or become polluted, and it will remain in good condition to be eaten at will.

Moderately fat animals are the most profitable. Every excessive fat animal has been fed at a loss during the latter part of its feeding. When an animal is ready for market, sell it; if there is feed left, buy some more lean animals and feed them. The nimble sixpence brings the profit.

When soft eggs are laid by fowls they intimate usually that the egg organs are inflammed. This state is occasioned by the birds being over-fed or too fat. Spare diet and plenty of green food, especially lettuce leaves in summer, or cabbage in winter, is the best treatment for fowls in such condition.

Every fowl house should face south, and, if possible, be upon dry ground. Any available ground, protected by groves, hedges, stone walls or by buildings of any kind, may be used for this purpose. Fowls suffer very much from cold storms and wind, and any protection against these is very valuable as a preventive of colds and roup.

Roup with Pigeons.

The roup with pigeons being a very formidable, and often fatal disease, I forward you the result of my treatment of it for the benefit of the fancy. The disease broke out in my loft, of about fifty birds, during the month of October, but attacked only the trumpeter, and all those affected were young birds of 1879 hatch. As soon as the presence of the disease was detected, the birds were removed to a large cage, about three by four feet, placed in a sheltered situation, and were dosed with about a spoonful of castor oil. This one dose of oil was the only internal remedy used, but the birds' throats and beaks were well syringed and washed with the disinfectant' *bromo chloralum*, di-

luted according to directions on the bottle, twice daily. The floor of the cage was well covered with dry sand, gravel and broken lime plaster, and a very small quantity of copperas dropped into the water can. They were fed on wheat, and out of four cases, only one died. The most remarkable recovery was that of a very fine young cock, which had just mated with a young hen, and they were sitting for the first time when he was attacked. His case was so severe that his head and beak swelled enormously, and an angry looking ulcer covered one side of his head and mouth, and prevented his closing his beak by nearly half an inch. He could neither eat nor drink for several days, forsook his nest, and seemed about to die. He was taken from the loft at this stage, and placed under the treatment above described, and in about two weeks had so far recovered as to be able to return to the loft and resume breeding. Apparently he is now perfectly well. As I have never seen the *bromo chloralum* recommended for pigeons, and have found it very efficacious as a wash for mouth and throat affections, particularly with fantails, I consider it worthy of introduction to the notice of fanciers.—*Fanciers' Journal.*

Rearing and Value of Ducks.

A great deal of skill is invested in the raising of the duck-crop. The writer's earliest experience in trying to raise young ducks taught me that the young should not be allowed to go near a pond or creek or in wet grass; they should be kept in a warm, dry place, and have no more water than sufficient to dip their bills in. When about fifteen days old give them a larger supply of water, and their frolics will not only prove very amusing to you, but harmless to themselves. Soft food is necessry for the young. For the first few days after hatching, hard-boiled eggs and cooked meat chopped fine should be given every other day; but the chief supply used in my yard is indian-meal and "ships" in equal quantities, well mixed and thoroughly scalded. Use this until the ducklings are two-thirds grown, the main article of food afterwards being grain. Ground worms and small fish are tidbits, with young ducks: they are not only very fond of such food, but thrive well on it.

There are said to be over a hundred varieties of ducks. In this country the best varieties are the Rouen, Alsbury and the Aesthetic. The Rouen attain the greater weight, and is superior in the quality of its flesh, as well as in their laying properties. They are very domestic and can be raised without much water. Clear water every day in a trough will meet all their wants. There is an old saying that ducks eat more than they are worth, which we consider very unjust. Several years ago we were speaking with a woman residing near Indianapolis, Ind., who raised yearly large numbers of ducks and chickens. She stated that "ducks eat less in proportion to their growth than chickens." Readers of the *Telegraph* may be surprised at this, but upon a little reflection they will understand the reason. It is because the ducklings reach maturity sooner than chickens; and the longer it takes to bring a creature to maturity the greater the expense. Experiment has taught us that with the same quantity of food, the ducklings in ninety days from the shell may be made to weigh from eleven to twelve pounds per pair, while chickens in the same length of time five or six pounds per pair. Hence the remarks that ducks eat more than they are worth, does not apply when ducklings are properly and intelligently managed. For home use, many consider that ducks are more valuable than hens, taking into account the number and size of their eggs. The solid matter and oil in a duck's egg exceed that of a hen's fully one-fourth.—*Germantown Telegraph.*

My hen-house is not a model,, but has nests and roosts all in one apartment. I was always troubled in having the fowls roost upon the front of the nests instead of going on the poles, until I made the top of the front board semi-circular instead of straight. It had no hindrance for the hens going on to lay, but as they are not so apt to be standing long on the edge, they are less liable to learn to eat eggs. To keep poultry free from lice, and their legs free from scab, I think it is a good plan to paint the roosts a few times during winter (before the time for saving eggs for setting commences) with a mixture of sulphur and grease. Dry sulphur may be sifted into a sitting hen's feathers with good effect.

LITERARY AND PERSONAL.

CATALOGUE and price list of Santa Rosa Nursery, Park street near main, east of the Plaza, Santa Rosa, Sonoma county, California. Luther Burbank, proprietor, 1880. Specialties—trees, plants and seeds.

REPORT of the "Pennsylvania Fruit Growers' Society" for 1879. Prepared by its officers; 70 pp. royal octavo, with five beautiful full-page colored illustrations of fruit, lawns, &c.

E. P. ROE's new descriptive catalogue and price list of strawberries, raspberries, gooseberries, blackberries, currants and grapes for the spring of 1880. Address E. P. Roe, Cornwall-on-the-Hudson, New York.

THOSE old and familiar journals, the *Gardener's Monthly* and the *Maryland Farmer* for February, 1880, have also been laid on our table. They are marching along, fully up to the spirit of the times, in all that relates to their callings.

THE AMERICAN BEE JOURNAL.—The February number for 1880 of this excellent publication is on our table, and is freighted with a valuable cargo of bee and honey intelligence from "stem to stern," which needs no eulogy from us. Thos. G. Newman & Sons, 972 and 974 West Madison street, Chicago, Ill. $1.50 a year, 48 pp., 8 vo.

CIRCULAR OF APIARIAN SUPPLIES.—Francis Dunham, De Pere, Brown county, Wis., inventor and author of Dunham's Foundation Machine. This is an 8vo. pamphlet of eight pages, addressed to the bee-keepers of the United States, and relates to all kinds of supplies necessary to advancing bee culture.

THE AMERICAN RURAL HOME.—A beautifully printed and illustrated double-folio at $1.00 a year, devoted to the farm, garden, household and stock, including, also, healthy general literature. Its clubbing list possesses peculiar attractions. Published by Rural Home Company, Rochester, New York.

DESTRUCTION OF OBNOXIOUS INSECTS.—Phylloxera, potato beetles, cotton worm, Colorado grasshopper and green-house pests, by application of the *yeast fungus*. By Dr. H. A. Hagen, Professor of Entomology at Harvard University, Cambridge, Mass., 12 pages royal octavo, in paper covers. See editorial on page 1 of this number of THE FARMER.

FANCIERS' JOURNAL.—A semi-monthly quarto of 28 pages devoted to the interests of plain and fancy poultry—"Not for itself, but for all." Springfield, Mass., January 1, 1880. This handsome and very ably conducted journal reached us too late to notice in our January number. This is No. 1 of vol. 7 "enlarged and improved."

KANSAS AND COLORADO ILLUSTRATED NEWSPAPER.—Kansas City, Mo., and Denver, Col., January, 1880. An eight page folio, illustrated with many landscape views of those new and progressive States. This number is largely occupied by a detailed recital of what the Great West proposes to do next summer in the matter of getting up a great national fair, at Bismark Grove, Kansas. Vol. I. No. 11. 5 cents a single number, from which we infer that it is only published at irregular or occasional periods.

BURPEE'S FARM ANNUAL.—Garden, farm and flower seeds, and blooded stock, for 1880. W. Atlee Burpee & Co., office and warehouse 221 Church street, Philadelphia, 44 pages octavo with 120 illustrations of vegetables, flowers, fruits, stock, poultry, implements, &c., interspersed with interesting and useful descriptive matter. A hand-book of agricultural, horticultural, floricultural and domestic supplies, and instructions in their cultivation and use. Copyrighted. Send for pamphlet, and labor intelligently.

NATIONAL LIVE STOCK JOURNAL.—The February number of this most excellent and reliable royal quarto has been duly received, and is freighted with such a cargo of live stock literature as is found in no other similar journal in the Union, if in the entire civilized world. But, alas, the January number for 1880 we have not yet seen. Perhaps it passed us and is eastward bound—gone and going yet, with a view of circumnavigating the world. We are consoling ourself with the thought that it probably will stop here when it "swings around the circle," if it does'nt take a notion to "repeat."

PSYCHE—*Organ of the Cambridge Entomological Club.*—Edited by George Dimmock, B. P. Mann, A. J. Cook and C. C. Eaton. Published by George Dimmock, Cambridge, Mass., U. S. A. Yearly subscriptions, $1.00; monthly numbers, 15 cents. January, 1880—being the first number of volume 3—has been received, and its improvement on previous issues is very appreciable. This is a royal octavo of 12 pages on clear, white calendered paper, and beautiful imprint. True, as its object implies, its patronage, it may be naturally supposed, will be limited to entomologists—but not *necessarily* so—and if it were, the name of that class of specialists in the United States and Canada is becoming "legion." At this time there are recorded in the registry of the "Cambridge Entomological Club" *eight hundred and thirty-five names*, all of whom make entomology either a specialty or a collateral study. But others will also be interested in the publication of *Psyche*, if for no other reason, at least for its interesting and useful bibliographical record. Although the *Club* that publishes it, and of which it is the official organ, bears a local name, yet the paper's aim is to represent the interests of scientific entomology throughout the civilized world, and especially wherever the English language can be read and understood. This journal, reflecting a phase of entomological literature that is in conflict with no other similar interest, should receive the undivided support of entomologists throughout our wide extended country.

THE LAWS OF LIFE AND JOURNAL OF HEALTH.—Managing editor Fanny B. Johnson, assistant editors Harriet N. Austin, James C. and James H. Jackson, Katy J. Jackson, and a large corps of valuable contributors. The January and February numbers for 1880 have reached our table, and are filled with the usual quantity and quality of sanitary literature which has so long distinguished its columns, and which is so little heeded by the masses of suffering humanity. This is a royal octavo of 32 pages in fine, tinted paper covers, and is published by Austin, Jackson & Co., Dansville, N. Y., at $1.50 per year, single copies 15 cents. The very appearance of this journal suggests "Health and joy and peace," and the fact that it has reached its 23rd volume evinces that it is appreciated and liberally sustained. If it is not, then it *ought* to be, and anything short of that cannot be charged to its talented conductors.

BULLETIN No. 3, "United States Entomological Commission, Department of the Interior, containing "The Cotton Worm," summary of its natural history, with an account of its enemies, and the best means of controling it; being a report of progress of the work of the commission. By Prof. Chas. V. Riley, M. A., Ph. D., Washington, D. C., January 28, 1880; 144 pages 8vo., with a full page colored plate, illustrating the *eggs*, *larva*, *pupa* and *imago* at their various periods of development; and nearly a hundred excellent wood cuts, illustrating the transformations of the cotton worm, (*Aletia argillacea*) and allied species, its enemies, and the various implements and remedies invented for its capture and destruction. We are under obligations to Professor Riley, the chief the commission, for an early copy of this work, containing, as it does, a large amount of much-needed information to cotton growers, who, however, can only be benefited to the extent that they read, observe intelligently, and make a practical application of the principles involved.

THE LECTURER.—A bi-monthly journal—and supplement to the above—devoted to the publication of speeches and lectures on the laws of life and health, delivered by the medical faculty of "Our home hygienic institute," 18 pp., royal 8 vo., published by the foregoing at the same place, gratuitous to subscribers. Vol. 1 No. 1.

THE PRACTICAL AMERICAN.—An independent monthly, especially devoted to manufacturing and building; sent post-paid to any part of the world for one dollar and a half per annum. P. H. Vanderwede, M. D., editor and proprietor. A royal quarto of twenty-four three-columned pages, handsomely illustrated. It is printed in clear, sharp type, on buff-tinted, calendered paper, and its literary contents embraces a larger and more varied field of topics than those usually included under "manufacturing and building"—scientific, mechanical, philosophical and domestic. This is a new candidate for public patronage, the number before us being the second of Vol. 1., for February, 1880, containing eighteen separate papers on a variety of different subjects of a practical and useful character. If eleven years of editorial experience on a similar paper, typographical execution, and ably-written literary production are of any value in the "make up" of a journal, then the *Practical American ought*, and, no doubt, *will* succeed, and fill a useful "vacancy." 34 Park Row, New York.

SCIENCE ADVOCATE.—Issued quarterly by the Natural Science Society of Atco, New Jersey, Henry Green editor. Vol. 1. No. 1, January, 1880, a four column demi-folio of four pages, at 15 cents per annum, with reduced club rates. Its motto—"The heavens declare the glory of God, and the firmament showeth his handiwork," appears upon its very first page, to indicate that it regards science as the "handmaid of religion," and not antagonistic to it, as so many of the would-be scientists do. An article on the 2nd page entitled *Science and the Bible*, occupies the most rational ground on that important subject that has come under our observation for a long time. It discountenances scientific arogance, and inculcates scientific humility, through which humanity is able to apprehend that any conflict seemingly existing between science and the Bible is only apparent, and results from an erroneous interpretation of both nature and the Bible. The subscription is so exceedingly low—hardly the price of a good cigar—that it ought to meet with a favorable reception everywhere, and especially among the present generation of young farmers whose tastes are turning in that direction, and who yet feel discouraged at the voluminousness of scientific literature, and its technicalities. The leading articles on mineralogy and botany are plain and practical, and constitute such scientific aliment as an ordinarily intelligent mind can appropriate and digest, and only appearing quarterly there will be ample time to assimilate its contents.

MISCELLANEOUS.

Seeds and Plants.

We would call the attention of those of our readers who contemplate purchasing seeds or plants during the coming season, to the advertisement of Peter Henderson & Co., New York, now appearing in our columns. Peter Henderson, the senior member of the firm, is known far and wide as a horticultural writer and authority. His books, "Gardening for Profit," "Practical Floriculture," and "Gardening for Pleasure," are now in the hands of thousands. The green-house establishment of this firm covers three acres in green-houses and employs upwards of fifty hands. Millions of plants are shipped by mail or express annually to every State and Territory. Their seed warehouse is the most extensive in the city of New York, and every order received is certain to be filled with goods of the best quality, and as they are producers as well as dealers, "everything for the garden" will be sold at low rates. Feb-3m

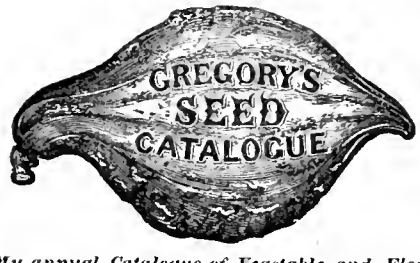
Sale of Full-Blooded Stock.

On Thursday, March 4, 1880, Mr. A. M. Ranck, of Bird-in-Hand, will offer for sale a lot of fine blooded stock. There are twelve head of thoroughbred short horn cows and heifers, and seven head of thorough-bred short horn bulls. He has, also, one grade cow, two grade heifers, a pair of first-class mules and three draft and driving horses. Mr. Ranck has paid special attention for years in getting good stock, and as advertised, it is all full-blooded. It would be better for our farmers if they paid more attention to improving their stock, and this sale of short horns gives them a splendid opportunity to do so. That it pays to keep good stock instead of common, has been demonstrated too often for us to attempt to do it now, and again we would advise farmers to attend his sale. He has issued catalogues giving the pedigree of the various animals for sale, and will send them to any one who applies.

The Cooley Creamer.

This method of "deep-setting of milk" is coming into so general use, that at the recent dairy fair in New York, it was not shown as a "novelty," but took its place as a common and indispensable adjunct to the dairy. With a Cooley Creamer a dairyman is entirely independent of the weather, and his product is uniform at all times. It is in this, as well as in its convenience, that the Cooley process of setting milk commends itself to all who make butter.

From our foreign exchanges we infer that it has been quite extensively introduced into use in Great Britain.—*Albany Country Gentleman.* Feb-4m.



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

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*.....	2:40 a. m.	4:05 a. m.
Way Passenger†	5:00 a. m.	7:50 a. m.
Niagara Express.....	10:05 a. m.	11:20 a. m.
Hanover Accommodation,.	10:10 p. m.	Col. 10:40 a. m.
Mail tram via Mt. Joy.....	11:05 a. m.	12:40 p. m.
No. 2 via Columbia.....	11:07 a. m.	12:55 p. m.
Sunday Mail.....	10:50 a. m.	12:30 p. m.
Fast Line*.	2:10 p. m	3:25 p. m.
Frederick Accommodation.	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom.....	5:45 p. m.	7:40 p. m.
Columbia Accommodation..	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express.....	7:25 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.
Atlantic Express*.....	12:25 a. m.	3:00 a. m.
Philadelphia Express†.....	4:10 a. m.	7:00 a. m.
Fast Line*.....	5:20 a. m.	7:40 a. m.
Harrisburg Express.....	7:35 a. m.	10:00 a. m.
Columbia Accommodation.	9.10 p. m.	12:0 p. m.
Pacific Express*.....	1:25 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*.....	5:20 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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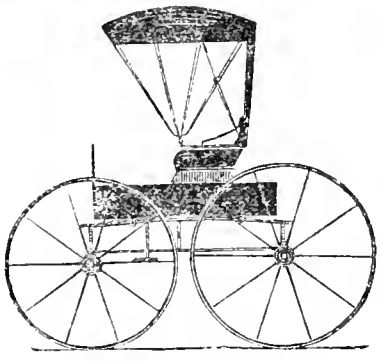

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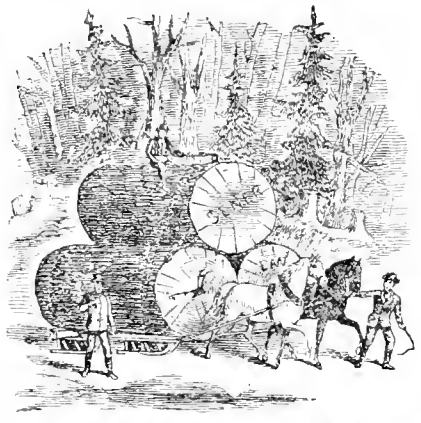

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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor. LANCASTER, PA., MARCH, 1880. Vol. XII. No. 3.

EDITORIAL.

"TOO SCIENTIFIC."

Perhaps no object is more frequently and more persistently urged against books, lectures and essays on natural history than that which is embraced in the title of this paper, namely: that they are "too scientific" to be understood by the unlearned, or those who have only received a common school education, and hence there is entertained a decided, and sometimes a bigoted aversion to them. Now this may not be the fault of scientists themselves, as a class, but may be owing to a defective system of common school education, or to the prejudice of the students. Doubtless there may be instances in which scientific names are introduced or multiplied, in order to make the scientists appear learned, or to mystify and darken the subject instead of shedding light upon it, but it is doubtful if honest men, who are entitled to the name of scientists, ever resort to such means based upon such motives. It is presumed that those who speak or write on any subject desire to be understood, and if they employ scientific names in natural history it is possible that they have no choice if they name the animals about which they are writing at all; for, many thousands of species have never received a common name, and probably never will. For instance, a contemporary recently published an article on an analysis of the water supply of a western city, in which he stated that water drinkers are in the habit of swallowing, perhaps, millions of such monsters as the following: *Nitzschia curvula, Cymatopleura soles, Cymatopleura elliptica, Stansoneis punctata, Pleurosigna spencerii and Rhizolenia eriensis.* Now it is not at all likely that these little animals will ever receive specific common names, because they are not visible to the naked eye, and hardly one man in a hundred thousand will ever get a sight of them, for they are only brought to view through a powerful microscope. Still they may be of sufficient general interest to the public to become the subject of essays, lectures, pamphlets and books, and if so, they must be called by their proper names. It is true that in many instances scientific names may be enclosed in parenthesis and skipped by the general reader without interrupting the general thread of the discourse, but to omit them entirely would mutilate the subject. Because common names are often very local in their significance, and often relate to very different animals in one locality from what they do in another. The subjects of the insect world, for instance, are specifically so numerous that one common appellation often includes a large and indefinite number of species. So much so, indeed, that it is rarely we can safely use the definite article *the* in alluding to them. Of what specific value are such common names as "Pinchbug," "Dung-beetle," "Hammerbug," "Woodborer," "Plantlouse," "Grasshopper," "Butterfly," "Moth," "Bumblebee," "Blowfly," or even "Potato-beetle," "Curculio" and "Phylloxera—the last two being popularized scientific terms—since some of these names may cover hundreds, or even thousands of distinct species. Even in such classes as quadrupeds and birds the systematic common names are becoming almost as complicated as their scientific names, comparatively limited as their numbers are. Again, take the class which includes the marine and fresh water shells, hundreds of which, to a common observer, look alike and yet are specifically different, and contemplate the difficulty of giving them all common names. Those who object to scientific names are also sometimes unsparing in their criticisms of scientific men because they do not give them an unfailing remedy for the extinction of each particular species of noxious insects. This may to a great extent be the truth of the matter, but farmers, gardeners, fruit growers and florists seem to forget that the discovery and application of remedies for the arrest or extinction of noxious insects is an experimental work, a work too that comes directly within the sphere of their own daily occupations and practical observations, and immediately affects their own material interests, and therefore ought to elicit their special attention. Their opportunities, as a general thing, are far superior to those of most entomologists in making the necessary observations upon insect life and habit. If they were as observant as their own interests would seem to require, they might become co-workers with entomologists, and be not only mutually beneficial to each other, but also to the whole community of earth's cultivators.

The functions of the entomologist are two-fold—scientific and practical—or they may be three-fold, when he adds the discovery and application of remedies for the destruction of insects, to his already formidable labors. The purely scientific entomologist will find his hands full for a lifetime, in dissections, analysis of structures, determinations of genera and species, nomenclature, and classification, including a multitude of contingencies relating thereto.

The practical entomologist will be as incessantly and laboriously occupied in observing and recording the histories and habits of insects, as well as their noxious, neutral and innoxious qualities and economies—their periods of "ingress, egress and regress"—their transformations and transitions—as well as their food, (whether animal or vegetable) their local domiciliations, their forms, sizes, and colors, in their various stages of development and many other things contingent thereto. Here is where the intelligent farmer, gardener and fruit grower's work begins, and if he is assiduous, he will find a great help in the labors of both the scientific entomologist and his practical co-laborer. It is true, that essays and addresses intended for the *people* should not be lumbered too much with technicalities, but the English language is so meagre, and the subjects of the animal kingdom are so immense in number, that the difficulty of finding a suitable common name is much greater than framing a scientific one. If the study of natural science was made a part of the instruction of our common schools the difficulty in technology would soon be overcome. School boys of ten years of age will learn to repeat from their toy books such names as *Aramaraparagaramoos*, *Cronondotonthologos*, and *Aldiborontifoskiforniosteas*, as easily as they can the word *huckleberry*, and it would be the same in regard to scientific names. Where, for instance, is the consistency of a German persisting in calling a little species of Lady-bird, *Kugelkaferaehnlicher Heckenblattkafer*, instead of *Chrysomela coccinelloides*, merely because the latter is a scientific name? Curculio and Phylloxera, as we have said before, have become in a great measure popularized, and are now quite as often used as Plum-weevil and Grapeleaf gall louse. Moreover, *Plum-weevil* can hardly be regarded now as a specific common name, because we have bred it not only from the plum, but also from the apple, the quince, the peach, the apricot, and the cherry, and it is also known to have been bred from soft plum and cherry "knots," although it is not claimed that they caused them. But, let those who complain about scientific technology take courage, for scientific writers are doing what they can to simplify and popularize the natural sciences, although it seems manifest that science never *will*, and perhaps never *can* entirely abandon her technology, there may be a descent to a lower mental plane, in accommodation to an intelligent mediocrity, but the persistently illiterate masses must become educated up to that plane if they value the benefits of scientific teaching. It is all folly to assume that the reasonably intelligent among the human family cannot become educated up to a general comprehension of scientific literature, for scientific technology is not peculiar to natural history alone. There is scarcely a mechanical professional or commercial occupation that has not its peculiar technology. Place in the hands of a man of acknowledged intelligence, on other subjects, a list of the different garments, and the fabrics which compose them, which enter into a lady's toilet of the present day, and see how much he will understand about the names, qualities and materials; and yet a little miss scarcely in her teens, may know all about them, and may be able to repeat their names as glibly as her A B C's; and a boy; ten or a dozen years old, may be able to lay his hand immediately upon a thousand articles in a drug store, all of which bear Latin names.

Why, the very cut-throats, burglars, pick-pockets, pugilists and habitues of the cockpit have a sort of flash technology that is perfectly intelligible to them, but "all Greek" to the honest and unsophisticated. It seems impossible that all the brain should have been monopolized by these and others to whom we have alluded, and none accorded to farmers, gardeners and fruitists. We must confess that, personally, we have often wished that scientific descriptions had been couched in somewhat plainer language, but at the same time we are compelled to acknowledge its impracticability. We never feel quite sure that we perfectly understand what the animal or plant is that an author is describing who entirely discards or ignores scientific nomenclature. We feel like a mariner at sea without a compass; although he may not fully understand the minute details of the instrument, yet so far as he *does* understand, it is to him an infallible guide. We must educate ourselves up to an intelligent standard out his subject as well as on others, and meet the efforts that are being made to popularize science, at least half way, and to do this there needs to be provision made for it in our systems of public instruction. The *curriculum* of the school need not be lumbered unnecessarily with scientific technology but still sufficient to guide the student in any occupation he may afterwards select as his business of life. Under any circumstances all elementary education is only rudimental, and only becomes useful when it is reduced to practice, and especially so when it becomes a part and parcel of our daily calling, and is interwoven with our pecuniary interests. The name, the, nature, the habits and the forms of the animals existing in the districts we have chosen for our inheritance, becomes, as it were, a part of our stock in trade, and a knowledge of them is as essential to the successful farmer as a knowledge of composts and fertilizers, or as agricultural implements and how to use them. And the longer we live, the more we improve and cultivate the land, the more attention will have to be paid to the incidental checks and drawbacks to agricultural progress.

THE next "boom" in the agricultural world will likely be the production of beet-sugar, at least there is a perceptible current now running in that direction.

LOCAL AGRICULTURAL FAIR.

As will be seen by the proceedings of the last meeting of our local society, near their close, preliminary action was taken in relation to a proposed fair of the society next fall. And the society has acted not one moment too soon. Indeed, several societies that we have heard of had committed themselves to such an enterprise full two months ago.

We hope our farmers and manufacturers will take sufficient interest in the enterprise to insure its success, and this we are confident they can accomplish with only an ordinary effort. Let every participant go to work as if the whole enterprise depended upon his own energy, his own volition and his own presence, and in this way a spirit will be started that will become infectious.

It will appear, too, that the exhibition rooms and other out-buildings of the Park are to be changed into tobacco warehouses, so that they will not be available for fair purposes. Well, that is something of a drawback, but it is not necessarily a *sine qua non* to a successful exhibition. The fact is, the capacity of the Northern Market House—the place suggested—has never yet been properly tested, never has been even half filled at any of the former fairs held there. If every avenue and every stand of that building was occupied it would make as grand a display as any county could desire to make. With proper economy of space and a proper arrangment and classification of material that buildind could easily accommodate six times as much as has ever been placed there on exhibition.

It is true, there would be no space for large machinery, but they are not exactly essential to success moreover, there are always state fairs and county fairs where ample facilities exist for the exhibition of heavy machinery, and inventors and proprietors will avail themselves of these. But small or light machines, agricultural and domestic implements, bee products, chickens and poultry in general, grain and seeds, garden and field vegetation, fruits, flowers, household productions, music and musical instruments, needle work, drawing, and last, not least, the various manufactures of tobacco. Leaf tobacco of various kinds besides many other things would all serve to make, in their aggregate, a splendid fair. Tobacco is becoming *king*, as much so as ever cotton was in the south, and, therefore, the tobacco interest alone could get up a fair in Lancaster county if only a moiety of the interest was manifested that prevailed at the centennial four years ago. Try it, tobacco men, and show the world what can be done here. But, says one, "it takes too much labor to get up and superintend exhibitions of this kind." True, it does require labor, but we would like to know if anything ever *can* be, or ever *has* been accomplished in this world without labor, and sometimes very hard and incessant labor. Most of the labor, however, required in getting up fairs can be purchased at a very reasonable price, but the directing and controling energy may not always be as accessible, or so abundant, as circumstances might require. The labor, in fact, has not heretofore been the chief trouble; it has been the seeming want of interest, and the unwillingness to labor on the part of the many, and casting the burdens of labor upon the shoulders of the few, which has always been the cause of complaint. But, really, even this is but a poor excuse for opposition, or indifference in relation to a fair. The many could not work to advantage; they would be in each other's way—"too many cooks spoil the broth;" as a general thing it must be delegated to a few, and these few clothed with authority to employ such assistance as they require.

An early start, a liberal premium list, equitable rules, attractive posters and ample advertising, backed with intelligent and energetic management, are the best "booms" to help along a fair. With these elements unselfishly "used and not abused," if the Almighty deems us worthy of any crops at all in 1880, we may be able to get up and sustain an exhibition worthy of the "name and fame" of Lancaster county. It won't do for us to be *as* our ancestors; we must transcend them just as they transcended *their* ancestors in the Palatinate, and planted themselves on American soil, where there was room to expand. Therefore *we* must "push along, keep moving," for if we stop, the car of progress will pass us and we shall be left behind. It must be evident to all who have ears to hear and eyes to see, that, like the unsophisticated old farmer whose mind was opening to a consciousness of these things—"We can't do as we used to did, because we ain't as we used to was." And none manifest in their domestic habits and customs a more practical apprehension of these things than the yeomanry of the county; in many respects they are really in advance of their city cousins, although they may seem otherwise. There are more benefits accruing from the public expositions of the products of the soil and the workshop than are immediately visible. It is a kind of planting, the reaping season of which will follow in due time. Speed then—"The plow, the anchor and the shuttle—united they stand, divided they fall;" for "In union there is strength."

OBITUARY.

Owing to our limited space we have not been in the habit of publishing death notices, even when the departed belonged to the noble army of agriculturists, except in a few very near and special cases, but the following from the *Germantown Telegraph* of February 25, 1880, is such a distinguished record, and the deceased had been so long before the world of agriculture and was so widely known and appreciated that we feel our readers will thank us for inserting such a record in the columns of our journal, where it may be referred to by themselves, by their children and their children's children, when they themselves have passed away. Very few of our readers perhaps have ever seen the man (we never have) but who has not seen, or could not have seen if he wished it, a copy of the familiar little "*Landreth's Rural Register*," which has been published these many years, and gratuitously scattered abroad with such a liberal hand. It was more than a mere advertisement, for it was always well filled with matters interesting and useful to the farmer and gardener:

"It is with great sorrow that we are called upon in our present issue to announce the death of David Landreth, the great seedgrower and merchant of Philadelphia. He died at his residence, "Bloomsdale,," near Bristol, on the Delaware, on Sunday last, in the 79th year of his age. He owned and operated the largest seed farm in the world, his principal depot for the sale of his seeds and cognate matters being in this city, though there were branches elsewhere. His father, who came from England, established the first seed farm in this country, in what is called "The Neck," and his son succeeded him in the business, but changed the location of the farm to the Delaware, two miles above Bristol, where he added to its dimensions until he had acquired a tract of land which for beauty, fertility, and as especially adapted to his business, is not surpassed in this country or in Europe. The deceased was the head of the firm of the well-known house of D. Landreth & Sons, and for unswerving integrity, reliable and scrupulous characteristics was the peer of any man in the community.

"In the year 1827 he was active in founding the Pennsylvania Horticultural Society, the first American Association of its kind, and in the following year he was chosen its Corresponding Secretary, which office he filled for nine successive years. As an associate of the Philadelphia Society for the Promotion of Agriculture, he zealously co-operated for many years, and for two successive terms filled its highest official station. It was during his occupancy of the presidency that the United States Agricultural Society held its famous exhibition at Powelton.

"The rural writings of Mr. Landreth are diffused through periodicals and pamphlets, and some of the latter have attained a wide circulation. For some years past he has resided at Bloomsdale, a most beautiful residence which he erected, and where he died. It is an estate of 500 acres devoted to seed-culture, and also contains an arboretum, principally of conebearers and other evergreens of interest to botanists. During the latter years of his residence at Bloomsdale he very rarely visited the city, the business of the house being managed by his sons, who were brought up to it and thoroughly understand all its multitudinous ramifications.

"Mr. Landreth was a gentleman by nature, education and association. He was a fine conversationalist, genial in disposition, of extremely pleasant manners, and never failed to impress every one favorably though he may have never met him but once. He was warm-hearted, sympathetic, generous and true. His loss will be long felt and mourned, and the vacancy he has caused will be long left unfilled.

"We learn that the deceased died calmly, with perfect resignation, surrounded by his family who loved him so devotedly, and that he retained his full mental powers to the end. His funeral took place on Thursday, at a quarter past three o'clock, at St. James' church, Bristol.

THE WEATHER.

It has long since passed into a vulgar proverb that "all signs fail in dry weather;" which is presumed, no doubt, to be otherwise in wet weather. But it seems they are as likely to fail in one kind of weather as in the other. The winter of 1879-80 cannot be said to have been a *dry* one, indeed, it has rather been the contrary, and yet all prognostications in regard to its specific character have signally failed. Not a single prediction in reference to it, however, commonplace or learned, has been fulfilled. It has been barely four weeks since we had a bright, clear and sunny Candlemas, which, according to an old tradition, presages six weeks of cold, blustering and wintery weather, and yet with the exception of a very few days, all that interval has been mild and spring-like, and the dandelion, the snowdrop and the crocus have been in bloom, and to make the case stronger, the groundhog who is supposed to be wonderfully weatherwise, ventured abroad on the 28th of February and "put his foot in" a steel trap, when his disciples in meteorological lore thought he was still enjoying his six weeks nap. It is true "old prob." generally makes a near approximation to the kind of weather we are going to have within twelve or twenty-four hours, but he rarely ventures beyond that. He does'nt pretend to foretell what kind of weather we will have for a week, ten days or a month hence, as some do—yea, six months hence has been confidently claimed by a few of them. Doubtless there must be some cause for these abnormal conditions of the weather, but those causes are hidden too deeply in the weather's "wisdom chest" for mortals to pry into and proclaim. Can the cause be planetary? Can it be that our new stargazing association has made the planets cross, and that they are punishing us for our trespass upon their domain? Thursday afternoon, March 4th sent the mercury up to 72° of Fahrenheit, and the bees were fairly rollicking in the few flowers they could find. What wonderfully vivifying elements, light, heat and moisture are, no matter at what season of the year they may occur. They especially disturb the repose of plants and animals in their winter hibernations, not even sparing the groundhog—secretly prying into the arcanum of nature, rousing animate and inanimate life into activity, telling them to go forth and prosper in the things relating to their different organizations, and they go forth. They don't stop to consider the various prognostications of weather-prophets, whether bipeds or quadrupeds. Whatever may yet be hidden in the womb of the future

it cannot now affect the winter months of 1879-80. That meteorologic epoch has passed away, and we are now on the threshold of spring. Whether a late spring or an early spring, a warm spring or a cold spring, time alone can tell.

GRAHAM BREAD AGAIN.

We cheerfully welcome our esteemed correspondent again to our columns. He had been absent so long that we had begun to conclude he had gone "where the woodbine twineth," and hence we thought we might trespass upon the domain of "Graham Bread" with prospective impunity, but it seems we have "waked up the wrong passenger." Of course, there will always be "many men of many minds." Our strictures were based mainly on the sentiment—"Not that we esteemed Graham bread any less, but that we esteemed bread made of good bolted wheaten flour more."

A school-boy is said to have proven to his grandmother, according the rules of logic, that "our cat has three tails." Granny admitted the logic and the argument, but, nevertheless, there stood the cat spasmodically manipulating her solitary tail, logic or no logic. Although we do not, and never have, condemned Graham bread, we fear we are as arbitrary in our likes as the stubborn *fact* that Tommy's cat had but a single tail. No doubt there are chronic cases of indigestion, dyspepsia, constipation, flatulency, &c., in which Graham bread may gradually initiate a more healthy tone than luxurious bread made out of good bolted flour. If Grahamites are as honest in their adhesion to and the expression of their sentiments in favor of their bread as we are in relation to ours, then "Brutus and Cassius may both be honorable men," and hence may "agree to disagree."

THE CHINCH-BUG.

(Blissus Cucopterus Say.)

Thanks to our geographical situation we have thus far been free from this insect pest, and probably may remain so, but its ultimate presence we think may be included among the possibilities, for we have a host of its cogeners, and sometimes they also become very destructive. It is not so very long since a nursery man in the State of Delaware lost about 800 small apple trees (all he had) by the punctures of a species of *Phytocoris*, which is not very far removed from the "chinch-bug," and similar destructions occurred in our county from the infestations of *Phytocoris lineolaris*.

It is estimated from sufficient data and reliable authorities that the States of Illinois and Missouri alone sustained a loss in 1874 of $50,000,000 in corn, wheat, oats and barley, and it would be safe to estimate the entire country's loss, the same year, at $100,000,000. It is very common for some editors and publishers to sneeringly regard these figures as exaggerations, alleging that as the chinch-bugs multiply most rapidly, and are most destructive during seasons of drought, it is not likely there would have been much of a crop at any rate, and, therefore, they could not fairly be charged with destroying what had never really existed, or what was not likely to exist under such circumstances. Whatever plausibility there may be in such an argument we have had sufficient experience to know that objectors of that character have a very imperfect conception of insect multiplication and gastronomy. The chinch-bug is not a large insect, not nearly so large as a bed-bug, (it belongs to the same order,) somewhat larger than a chicken-louse, but it often happens that these small insects are more prolific and more destructive than the larger species. Take for instance the "grape phylloxera," which in a few years has spread over 1,600,000 acres in France, and has utterly ruined the vines in 700,000 of those acres, effecting a loss of $830,000 in a single district in a couple of years, and that insect is a mere pigmy in size compared with the chinch-bug.

We believe that the estimates made fall largely below the reality, and that any impressions fostered to the contrary have a tendency to mislead the people and throw them off their guard. The infestations of noxious insects are so formidable, and their destructions so vast, that people cannot be too vigilant in effecting their extermination.

GROUND HOG PHILOSOPHY.

"Yf ye wudde-chucke seez his shaddo in ye sunne,
Six wokes of wynterre shall have begunne;
Yf ye wudde-chucke his shaddo does nott see,
Six wokes of sprynge-lyke weather thayr shall be."

The orthography of these lines would seem to imply that they were written in "fair sunny England" about four hundred and fifty years ago—during Chaucer's time, if not by that distinguished poet himself. What is most fatal to an implicit faith in their genuineness is the fact that "wudde-chuke," or "wood-chuck," is purely an Americanism; that name not being applied to any animal in England, or even on the continent of Europe. It is even questionable whether that animal or any other of the same genus has an existence in England at all. On the continent of Europe they have the "Alpine Marmot" (*Arctomys alpinus*), which is generically allied to the "ground-hog" of Lancaster county, but, but it is not known by the name *wood-chuck*. Nor are the habits of this animal used as a prognosticator of the weather, either in England or on the continent of Europe; therefore the entire prophecy is as little known there as the term "wood-chuck" or ground-hog either. Consequently we must transfer the origin of the story to the continent of North America, and specifically to Pennsylvania, where it is more popular than anywhere else in the American Union. But then the language of our quotation, and especially its orthography, is not in any sense Pennsylvanian, it is too antique, and belongs to the period we have above indicated— indeed, it smacks very much of an overdrawn very modern imitation—and very probably was intended to clothe a modern local superstition in an ancient foreign literary garb. Wherever the notion exists, and with whatever faith it may be believed in, we think we ought to acknowledge its Pennsylvania paternity—if we do not claim it even for Lancaster county—and record it as one of the peculiar notions of the "Pennsylvania Dutch." It cannot be exactly ranked with superstitions, for there may be many who believe it with qualifications—in a sort of Pickwickian sense—and therefore we "book it" as a *notion*. Nor are we prepared to say it is entirely "moonshine," when the prophecy is properly understood, because it is fulfilled about as often as it fails; but in the majority of instances, the weather is of such a character for six weeks after Candlemas, that it could not be established before a court and jury whether it has been a fulfillment or a failure. This depends somewhat upon how people understand it. Some would say we shall have six consecutive weeks of cold or mild weather (based upon the character of the weather on Candlemas or Groundhog day,) without reference to the kinds that might follow the six weeks. Others may say that we shall have an early or a late spring, with six weeks of cold or warm weather interspersed between the 2d of February and the 1st or middle of April, as the case may be; indeed, we have heard it said long years ago, that the sun must shine sufficiently to cast a shadow, or be overclouded, *all day* on the 2d of February, or the prognostication loses its potency and is entirely void; others were content with one hour, or even less, in the morning. But, "for the sake of the argument," suppose we admit the genuinness of the writing: we are then forced to conclude that the author of this old prophecy knew very little about the history or habits of the American wood-chuck, or ground-hog. And, if he had intended his prophecy to be applicable to the "uttermost parts of the earth" and for all coming time, probably would have substituted some other animal as a symbol of his prognostication—a hare, a rabbit or a cat, for instance—and not have identified it with a physical impossibility. As to whether a clear or cloudy Candlemas morning presages cold or mild weather during the six weeks which immediately follow it, we leave entirely to the discussion of the weather-wise; because, in discussing the question from *our* standpoint, we are not disputing its meteorological influence. There may be zodiacal or planetary affinities that we are unconscious of, although they may not be so unerring or so conspicuous in their manifestations as some people claim for them, running as they do far beyond the comprehensions of the most philosophical mind. This is not the case in regard to weather prognostications alone; but also in relation to what may be deemed more tangible subjects. How often are physicians of long practice and the most extensive and varied experience baffled in the treatment of an apparently simple disease, in which they have found that all the symptoms have misled them, all their remedies have failed, and they have only discovered the real cause after it was too late to benefit the patient, or perhaps only after they had made a post mortem examination. It may often be so also in regard to the usual signs of the weather, and perhaps it always will be so as long as human knowledge cannot penetrate the vail that shrouds the hidden secrets of nature's realm. Therefore, we here neither deny nor affirm the meteorological significance of the day known as Candlemas in the churches, and Ground-Hog day among the "gentiles." *Practically* speaking, there is not a farmer who would not rather have six weeks of cold weather to follow the 2d day of February than six weeks of mild or warm weather, unless he could be assured that it would not return to cold again after the middle of March, for it seems, according to the prophecy, that neither Candlemas nor the ground-hog exercises any influence over the weather beyond the six weeks which immediately follow the second of February. Nor would the prevalence of either a cold or a warm temperature—unless they continued considerable longer than six weeks—result in what is usually considerd a late or an early spring. All this argumentation, however, may seem like the two opposing attorneys, who discussed, during a long summer day, the application of a certain point of law in a case then before the court and then in despair of convincing each other, appealed to said court for its opinion in the matter. At length the judge, weary and worn with the long debate, arose and with becoming dignity answered: "*Gentlemen, that law has been repealed?*" In like manner we may enunciate, "Gentlemen, the ground-hog never leaves his winter retreat on a cold day? Indeed, it *could* not if it *would*. It is a hibernating animal, and when it retires for the winter, it remains in its lair until the warm return of spring. It is only influenced in its movements by a warm temperature,, no matter in what month it occurs, just as vegetation, insects, or other subjects of the kingdom of nature are. Neither sunshine nor cloud could bring it out if the weather was cold, nor keep in if the weather was warm. It is entirely independent of festivals and set days, if there is not sufficient heat to revive it. Its fixed habit "repeals" all such useless speculations.

It is said that in Scotland the prognostication is expressed in this wise:

If candlemas is fair and clear,
There'll be two winters in the year,

which does not jeopardise the prognostication by an *improbable*—and in some instances an *impossible* figure. The author of these lines probably knew nothing about the ground-hog or wood-chuck as it is called in America, nor yet about its peculiar habits; but this did not prevent him from concocting a prognostication. Candlemas is known wherever Christianity is known, and hence its fitness as a meteorological symbol: but the ground-hog is not co-extensive with Christianity, although it has a tolerable wide range, and there are also several species of them.

First, we will mention the "Maryland marmot" (*Arctomy's monax*). This is *our* local species, called the "ground-hog," also called locally, elsewhere, the "wood-chuck;" but it has various other names. In Canada it is called the "marmot," or ground-hog, by the English and Scotch, but the French Canadians call it the "siffleur." At Hudson's Bay it is called the "thick-wood badger; in Russian America, the "Tarbagan." The Creek Indians call it the "weenusk," and the Chippewas, "kath-hilla-kovang;" it is the Quebec marmot of Pennant, and the marmot de Canada of Buffon. Linnæus described it under the scientific name of *Mus monax*, the same genus to which the common rat belongs. Gmelin placed it in the genus *Arctom's*, which is, literally interpreted, "bear-rat." It had also other names.

At least seven species of *Arctomys*, or "ground-hogs," were known to the territory of the United States forty years ago, and by this date many others may have been added. Most of them, however, have been referred to other, or new genera. One species in Lancaster county, as previously stated, is usually referred to in books as the "Maryland marmot," probably because the specimen from which the original description was made was captured in Maryland and supposed to exist nowhere else. Then there is the Quebec marmot (A empretæ) which was somehow once confounded with ours, but now supposed to be a distinct species, Franklin's marmot (*A. Franlinii*), Tawny marmot (*A. Richardsonii*), prairie marmot (*A. ludovicianus*), Parry's marmot (*A. Parryii*), and Hood's marmot (*A. tradecimlineata*). These specimens vary in size from that of our common red squarrel up that of our common "possum." About ten years ago we had a specimen of "Hood's marmot" sent to us from Missouri by mail, enclosed in a tin mustard box. It was late in Autumn and it was eight days on the way, but within half an hour after the box was opened in a warm room, the animal revived, and became as active as if nothing unusual had happened to it. It was very pugnacious, and would resent promptly any disturbance of its repose. It ate very sparingly of chestnuts, and as soon as the temperature lowered towards 30° or40° it would relapse into its torpid state. This species has been removed to the genus *spermophilus*. It finally escaped and was never recaptured.

PENNSYLVANIA FRUIT GROWERS.

A special meeting of the Executive Committee of the Pennsylvania Fruit Grower's Society was held at the Stevens House, Monday morning, March 1st. The president, Judge George D. Stitzel, of Reading; vice president, Henry M. Engle, of Marietta, and recording secretary, E. B. Engle, of Marietta, were present, the former presiding. The only business transacted was the appointing of committees for the ensuing year, which are as follows.

General Fruit Committee—E. Satterthwait, Montgomery county, chairman; A. R. Sprout, Lycoming county; Joseph Lewis, Jr., Delaware county; Dr. James Calder, Centre county; J. O. Martin, Franklin county; W. M. Pannebacker, Mifflin county; J. V. Garretson, Adams county; S. Stevenson, Lackawanna county; Bassler Boyer, Lebanon county; T. A. Woods, Dauphin county; J. W. Pyle, Chester county; A. S. Shreiner, Northampton county; Casper Hiller, Lancaster county; Peter Lint, York county; A. S. Sheller, Union county; W. L. Schaeffer, Philadelphia; J. Murdoch, Allegheny county; H. S. Rupp, Cumberland county; Cyrus T. Fox, Berks county; H. Leh, Lehigh county; F. F. Merceron, Columbia county.

Committee on Nomenclature—Josiah Hoopes, Chester county, chairman; L. S. Reist, Lancaster county; J. Hibbert Bartram, Chester county; S. W. Noble, Montgomery county; Ezra High, Berks county.

Committee on Floriculture and Arboriculture—Charles H. Miller, Philadelphia, chairman; P. C. Hiller, Lancaster county; John C. Hepler, Berks county; George Achelis, Chester county; R. B. Haines, Montgomery county.

Committee on Orcharding—Thomas M. Harvey, Chester county; Dr. J. H. Funk, Berks county; J. G. Engle, Lancaster county; H. F. Clark, Columbia county; Jacob Heyser, Franklin county.

Committee on Entomology—S. S. Rathvon, Lancaster, chairman; Jacob Stauffer, Lancaster; Herman Strecker, Berks.

Committee on Arrangement and Reception—E. G. Fahnestock, Adams county, chairman; Raphael Sherfly, Adams; Messrs. Stahle, of Adams; Hereter, of Adams and E. B. Engle, of Marietta, Lancaster county.

THE STATE FAIR.

The State Agricultural Society.

President W. S. Bissel, John McDowell, of Washington county; J. L. Norris, of Susquehanna county; Dr. A. L. Kennedy, of Philadelphia; Elbridge McConkey and D. W. Seiler, of Harrisburg, members of the Pennsylvania State Agricultural Society, met at the Girard House, Philadelphia, to arrange the details for the State Fair and International Sheep Show, to be held next fall at the Permanent Exhibition Building. The State Fair will continue from the 6th to the 18th of September, and will be followed by the Sheep Show, which will close on September 25th. The State Agricultural Society will offer premiums aggregating $40,000, which will be divided into classes as follows: Sheep, $6,000; horses, $7,000; cattle, $8,500; swine, $3,000; poultry, $1,000; dairy products, $1,500, and the balance to machinery, fruits, seeds, etc.

CONTRIBUTIONS.

For The Lancaster Farmer.

ABOUT GRAHAM BREAD.

An article on this subject appeared in the *New Era* some time since from L. D. Z. and was copied into the Lancaster Farmer, of February, and commented upon to some extent by the editor of the latter. As there are generally two sides to questions, it will be readily conceded to this, but the broad and sweeping denunciation of the use of Graham Bread by L. D. Z. is of too much importance to pass without a reply. It is too late to condemn an article of diet of so much importance which most of the ablest physicians and pysiologists of the present and former ages have pronounced superior to white flour. Graham flour bread is especially recommended by physicians to invalids in many and various cases, and if the thousands would speak who have been greatly benefited or cured by its use, such articles as the one referred to would appear very insignificant. Such articles are oft times written for buncomb only, but may deter many a suffering invalid from taking advantage of an article of healthful diet by which he or she might be greatly benefited, if not cured. I do not claim that Graham bread would be a cure for all the ills that "flesh is heir to," but bread being considered the "staff of life" the general use of the article best adapted to the wants of the human system would accomplish very much in that direction; but so long as mankind prefer to gulp down all the contents of the drug shop instead of seeking relief in hygienic living, invalids will be the rule, instead the exception, as unperverted nature intended it should be. L. D. Z. says young children and feeble or irritable stomachs will be injured by its use. Now if he could see all the children that are fed on Graham instead of white flour diet he might become an advocate of the former, unless he is very obstinate in his ideas. He also advises never to use soda, saleratus or baking powder in the manufacture of it, which is sound doctrine, but it applies no more to Graham than to any other flour. I shall not repeat the slang in the close of his article, as such language is only used in the absence of sound argument.

Now, Mr. Editor, I know it is a little risky to invade the editorial sanctum, as such have the inside track so far as their paper is concerned, but I know the editor of the Farmer too well to suspect him of unfairness towards his contributors. The editor of the Farmer seems disposed not to condemn Graham bread, but at the same time gives it several pretty hard licks. I suppose he knew that there are still a few Graham eaters about that are not quite dead yet; he may have expected a review. He thinks he would never learn to like it, having tasted it on several occasions and felt as if it would make him sick. This will not be disputed here, but such cases are very common, and will apply to a great many articles of food that are staples of diet generally. That such is the case, it is not at all strange, amid the abnormal condition of mankind generally; but let us get upon a platform upon which we can all stand. We must believe that man by nature is in a natural or normal condition, and that Deity has provided food in variety adapted to such condition. Now if man eats food that does not agree with him, where is the fault? Not in the food, if it is such as is by nature intended for him, because it has not become abnormal, then it follows that if proper food does not agree with him he must be in an abnormal condition, and in such a case is not capable of judging what is best for him. I shall prove that a person may change his habits and tastes to such an extent that he can no longer relish simple and proper food, and will feel uncomfortable unless it is doctored up with articles that are not food, such as salt, pepper, mustard, grease and a host of other ingredients, neither of which he would eat separately, while a person of simple habits and unused to such diet could neither relish such a mixture nor feel comfortable after eating it. Now two such persons judging by their tastes and feelings who is right. Both, you may answer. But let us look up this matter of taste and feeling a little further and we will find that habits will make such changes as to bring about "a second nature," (if there is such a thing,) so that what was eaten with a keen relish at one time can no longer be enjoyed without increasing the condiments and stimulants, and what was at one time nauseous is now taken with gratification. The use of tobacco will furnish evidence of my assertions. How few habitual tobacco users admit that it does them injury, and are all out of sorts when deprived of it for some time. They judge by their tastes and feelings; are these a sure criterion? Let us see. How was it when they took their first quid or smoked their first cigar? I need not tell them now, their recollection of it is not forgotten. Now, Mr. Editor, please answer candidly, when was the system in the most proper condition to judge what was proper to be taken by it, then or now? When was the system most nearly normal, then or now? I have came to conclusion that a person who could overcome his early disgust of tobacco, so as now so greatly to enjoy it, might certainly, and with less perseverance, have learned to enjoy simple Graham bread, and if not the better, certainly not the worse for it. He would certainly be less obnoxious when coming in contact with persons who abhor the fumes and fragrance of the weed. Once more of Graham. Is it not an established fact that the most eminent chemists and physiologists say that the whole kernel of wheat ground and eaten supplies the wants of the human system better than white flour? That the bran supplies material for the healthful building of the body which flour does not contain. The scare-crow that bran is indigestible is no argument. If our food were so concentrated as to be all digested the system could not be sustained in a healthy condition. The reason that bran is so objectionable to some is owing to the method of grinding, for to make best white flour the bran must not be cut, but left as near whole as possible, while to make best Graham meal wheat should be ground on sharp burrs so as

to cut the bran fine. In conclusion I would say I do not expect to make converts to Graham diet, but trust there can be no harm in agitating the importance of hygienic living. If it could be made as fashionable as so much improper diet now is, it would tell largely for the better upon the rising generation. There is no question in the mind of the writer that the excessive use of the many spices and condiments so common on the tables at present, cause more than anything else the cravings for, and indulgence in stronger stimulants, such as tobacco, opium and ardent drinks, in addition to diseases of various types. *H. M. E.*

For The Lancaster Farmer.

WHAT FERTILIZER SHALL WE USE.

(Continued from February No.)

If we were entirely sure as to which one ingredient the soil lacks, the application of the fertilizer would be both simple and profitable on all crops. Where two are lacking, even if positively known which two, the application might not be profitable on some crops, as the prices are too low, the cheap lands and fertile soils of the west reducing the prices. Where all three are wanting, or what might be called poor or worn out soils, the application of a sufficient quantity would be profitable only on tobacco at present prices, or where trucking was brisk, as near some city.

Those that advocate the use of complete fertilizers may be divided into two classes; one would have his fertilizer compounded so as to have the ingredients in about the relative proportions as found in stable manure, the other would have them according to the supposed needs of the crop to which it is to be applied.

That the latter class may be in the right is not to be disputed, but only in such cases as where the same crop is repeatedly removed, or in any other case where a fertilizer is applied to *each* crop. But where a fertilizer is applied to one crop and then a regular rotation of crops following, without further application, then I would believe in and apply a "complete" fertilizer instead of a "crop" fertilizer.

But we have this further to bear in mind that while phosphoric acid and potash usually remain in the soil until removed by cropping, this is not the case with nitrogen, either as a nitrate or in the form of ammonia salts. In all good fertilizers the nitrogen is in a very soluble state, it is soon washed out of the soil or beyond the reach of the roots, or it may unite with some element in the soil and escape into the air. In stable manure it is not so soluble, and is given slowly to the soil as the manure decays. It might be advisable therefore to apply less nitrogen at a time, and apply it oftener.

We will now see from what sources the different ingredients may be derived.

Nitrogen or ammonia is supplied by the following: Nitrate of soda contains 15½ per cent. of nitrogen; price 5 cents per pound. Sulphate of ammonia contains 20 per cent. of nitrogen; price 4½ cents per pound. Both the above are very soluble and should be applied at the latest possible moment before the time at which it is to act.

Peruvian guano contains as high as 13 per cent. of nitrogen; it also contains a high percentage of phosphoric acid, in some cases as high as 20 per cent.; the price ranges from $50.00 to $65.00 per ton, according to the percentage of nitrogen, phosphoric acid and potash; it also containing from 2 to 3 per cent. of the latter.

Nitrate of potash, saltpetre, contains about 12½ per cent. of nitrogen and 42½ per cent. potash. It is too high in price to warrant its use in the field, the price being about 9½ cents per pound.

Dried blood and dried flesh contain from 11 to 12 per cent. of nitrogen and are used to a considerable extent in trucking. The dried blood sells at from $40.00 to $45.00 per ton.

Phosphoric acid is found in the following: "Acid phosphate," "acidulated rock phosphate," &c. are all about the same thing, being south Carolina or other rock phosphates, and treated with sulpuric acid. I believe they contain about 11 per cent. of *soluble* phosphoric acid when properly prepared. The price is about $25.00 per ton.

Superphosphate prepared from burnt bone, "dissolved bone black," contains about 16 per cent. of available phosphoric acid, but I do not know how much is *soluble*. The price is about $35.00 per ton.

Superphosphate prepared from ground raw bones contains about 16½ per cent. of phosphoric acid. Manufacturers claim all the way from 10 to 16 per cent. as soluble and available. This is the so-called "phosphate" and is manufactured over the whole country, each maker claiming his as a standard article. It is well to know the reputation of the parties offering it, as it is so often greatly adulterated. It is hoped our present law will do away with much of the trash heretofore offered. The price varies from $33.00 to $45.00 with the different manufacturers.

Soluble Pacific guano is rich in phosphoric acid, and also yields about 2¾ per cent. nitrogen, (3⅓ per cent. ammonia) and about 2 per cent potash. Unlike the Peruvian guano a heavy application is not likely to injure the growing plant, being without that caustic (burning) quality for which the Peruvian is sometimes dreaded.

Potash is obtained from the following: The sulphate of potash when a good article is obtained, contains about 44 per cent. of potash, costing about $70.00 per ton, or nearly 8 cents per pound for the potash. A lower grade can be purchased at $30.00 to $35.00 per ton, in which the potash costs only about 7 cents cents per pound.

German potash salts (kainit) can be purchased at from $12.00 to $18.00 per ton, according to the percentage of potash contained. The latter price is asked for an article containing about 15 per cent. of potash, making the cost of the potash 6 cents per pound.

Muriate of potash contains about 50 per cent. of potash, and is worth $40.00 to $45.00 per ton, the potash thus costing from 4 to 4½ cents per pound, but unfortunately it dare not be applied to all crops, tobacco, potatoes and sugar beets (for sugar) being, however, only the important crops that are injured by it. It is supposed to injure the burning quality of the tobacco, lessen the amount of starch in potatoes, and diminishes the amount of sugar in the sugar beets.

Ashes supply potash of the best quality and to the amount of 10. per cent. of their weight, except in pine and other evergreen wood, where the percentage is only 6. A bushel of unleached ashes would thus contain respectively about 5 and 3 pounds of potash; when leached they contain only about one-fourth of this amount. They also contain about 4½ per cent. phosphoric acid from evergreen wood, and 6 per cent or more in deciduous woods, and this amount is diminished little or nothing in leaching. As they impart these ingredients very slowly to the soil, heavy applications can be made without danger, applications of a hundred bushels of leached ashes being known; in the unleached twenty bushels and upwards are often applied.

Many farmers make objections against the use of fertilizers, contending that it "runs down" the land so that the soil will not produce any crop except by a fresh application, and that at last even the heaviest applications will not respond. Now this is contrary to theory and is also contrary to experience when that experience is the result of a systematic and common sense method.

Though it is very well known that a fertilizer must contain three certain ingredients, yet many apply a plain superphosphate made from burnt bone or rock phosphate, that contains absolutely nothing but phosphoric acid. Repeated applications of this may at first bring good crops, but in time the nitrogen and the potash in the soil will be reduced to so small a quantity that the roots can not find enough for the needs of the plant, and the result will be feeble and stunted plants incapable of perfecting a crop. The only way to get a full crop again is to apply a fertilizer that contains those ingredients that the other lacked.

Another cause of "running out" is by applying a fertilizer, though it may be a perfect one, in insufficient quantity. They being usually very soluble, and the roots therefore having easy access, it follows that the better the fertilizers the quicker the crop is pushed in its first stages, and after a certain growth is attained it is able to push on to perfection by using the ingredients that may have been in the soil after that supplied by the fertilizer has been exhausted. In a good season this way of applying will be aggravated by the more than ordinary strain put on the soil in perfecting the greater crop.

In the use of incomplete fertilizers some crops are most benefited by a certain element of plant food and others by a different one. Such element is said to be the dominant element required for that crop.

Wheat, rye, oats and all the grasses seem most benefitted by nitrogen. This element is supplied by the nitrate of soda, and is applied to wheat in the fall to make a quick and strong growth; in the spring to all the other crops the usual application being 100 to 150 pounds per acre.

Corn and turnips have phosphoric acid as their dominant element. There seems to be no fertilizer that has been more uniformly successful with corn than a superphosphate from raw bone, but it must not be inferred that paying crops always result from its use. The season and the soil are factors that make or mar crops, for which oftentimes no intelligent reason can be given.

Tobacco, potatoes, clover and fodder corn are the more prominent farm crops that require potash in abundance. The truck and garden crops that are greatly benefited by potash are cabbage, peas and beans.

Any one wishing to use a complete fertilizer will be rather bewildered if he asks two or more manufacturers as to the best combination, the ratio of the elements varying with each manufacturer. Prof. Ville, not a manufacturer, fixed the ratio at about 6½ for nitrogen, 5 for phosphoric acid and 7½ for potash. In well rotted barnyard manure the ratio is in the order as above, respectively about 6, 3 and 5 which correponds pretty closely with the Ville formula, except in nitrogen, and as the nitrogen in the latter is more soluble it is no doubt as near correct as it can be made.

If fertilizers are used it may be well to make some experiments in soil tests at the same time, but go slow until you find out what crops you can raise profitably by their use.—*A. B. K.*

SELECTIONS.

TOBACCO CULTURE.

How our Growers Raise the Weed—Tobacco From the Seed Bed to the Warehouse —A Practical Essay.

The enormous proportions attained by the tobacco crop of Lancaster county, its rapidly increasing importance, the vast wealth it is pouring into the pockets of our farmers, and the large profits it returns to the growers, have drawn the attention of all persons interested in the trade, either as consumers or planters.

In response to a request, we publish below the subjoined directions, intended to aid beginners in growing tobacco. They will be found sufficiently minute for all practical purposes, and if strict regard is paid to the methods here laid down, the result will, no doubt, be found satisfactory. Mr. Frantz is one of our most experienced and intelligent growers, and speaks from many years of actual experience. His methods, as here laid down, embrace the practice of our most successful planters, and when strictly adhered to, will no doubt give as good results elsewhere as they have done here, soil and climate being favorable. Experience, however, is the great teacher; careful instructions will

go far, but they must be supplemented by actual experiment; growing fine tobacco is not to be learned in a single season, but the knowledge gained one season must be increased during subsequent ones; in fact the tobacco planter is never done learning, but every succeeding year contributes its quota to his already acquired store of information.

How to Raise Tobacco.

The culture of tobacco has assumed such proportions as to make it one of, if not the most important crop, in a monetary point of view, in Lancaster county. It has grown from time to time, in acreage, as well as in quality, until it has attained a reputation in the markets of the country excelled only by that grown in the West Indies and a few other favored localities.

This is the result of that care in its management through its various stages, which has of late years been practiced and studied by the more careful growers.

With the view of guiding others, not familiar with the process, I will endeavor to give a brief outline of the manner of treating the plant through the various stages, from the seed to its preparation for market.

The Plant Bed.

In the first place, the successful grower must raise his own plants, and this is by no means the least difficult part of the work. As the seed is small, and the young plant tender, it requires attention corresponding with these conditions. The prime requisite is a piece of ground, *of rich soil*, and protected from cold winds. This should be prepared in the fall, by spading and manuring, and about April 1, sow seed at the rate of a tablespoonful to one hundred square yards. Having previously pulverised the soil thoroughly, then rake it gently, and pat the surface with back of a spade to bring the seeds in close contact with the ground. Mixing the seed with, say a pack of wood ashes, will facilitate the sowing of the mixture with regularity.

How to Grow Strong Plants.

A covering of the bed with hog bristles has a wonderful influence in promoting the development of the plant. The bristles may be removed, after the plants have attained a growth of three or four leaves, and preserved for future use, a rake being the best means of removal. Frequent sprinkling is indispensable, as moisture is an active promoter of all vegetable growth. A solution of some active fertilizer applied in liquid form is of great benefit. By careful attention to your plant bed, thorough weeding included, they will be ready for transplanting during the latter half of May in this latitude. From this to say June 5, plant whenever weather and ground are favorable; the same conditions that favor the growth of a cabbage plant will do the same for tobacco, and all farmers should know how to start cabbage.

I have dealt with this part somewhat tediously, but none too much so for the interests of the grower, as his experience will testify to abundantly. Good plants ready in time are half the prospect of a crop attained, and not having your own, and in time, is like expecting to make "bricks without straw."

Preparation of Ground.

The ground cannot be too rich. Barn-yard manure is, beyond dispute, the one preferable, if not the only reliable, fertilizer. Gypsum, wood ashes, &c. are good auxiliaries. Sandy loam is preferable to a stiffer soil, and thorough cultivation is absolutely necessary. Without this a paying crop cannot be expected. Fall plowing, or early spring, is desirable.

Setting out the Plants.

When ground is thus prepared, say about May 20, it should be ridged in rows, three and a-half or four feet apart, if the ground is very rich. After ridging, cut out indentations to receive the plant, say three and a half inches deep on the row, and from twenty-two to thirty inches apart, as experience may dictate, a medium between the two being, perhaps, as good as any, depending, of course, on soil and season. The plants should be set below the general level of the row, as by future hoeing the higher portions will be cut down to a level. All other cultivation should be the same as that for corn or other hoed crops—thorough and frequent. No weeds dare be allowed at any time. In an average season the plant will mature sufficiently by the early part of August to dispense with further cultivation of the ground, as the plants shading it will check the growth of weeds.

When to Top.

Whenever the plant develops from fourteen to sixteen leaves, break off the top, don't cut it off. This arrests the further production of leaves, but will promote the growth of suckers, which will have to be removed, after attaining a length of three or four inches, as often as they appear.

Enemies to be Guarded Against.

It may be well to refer here to two formidable enemies of the plant, viz: the black cutworm and the green tobacco worm. The former will attack the roots of the plant as soon as it is put into the ground. The depredations of this worm sometimes necessitate frequent re-planting. They must be hunted and destroyed until they disappear, which they will do as the season advances. The last named generally appears about July 1, and feeds on the leaf until the crop is secured in the sheds. In fact, they frequently, if not picked off clean, cling to the leaves after the stalk is hung up. About these there is but one advice to give, pick them off and destroy them, going over the field for this purpose daily, as the ravages of the green worm do more to injure the quality, perhaps, than any other thing.

Topping.

Usually, from three to four weeks from the time of topping, the plant will mature and be ready to cut. Uniform size of leaves, and a stiffness of the leaf, making it liable to break by bending and handling, are the surest signs of maturity.

When to Cut It.

Cut after the dew is off, but not during the middle of the day, when the sun is bright, as you must guard against burning while it is undergoing the wilting process, preparatory to spearing and handling in the removal to the shed.

Hanging It in the Barn.

When sufficiently wilted, the plan most in practice is spearing or stringing upon laths four feet long, five or six plants to each lath, and then removing the same into sheds, hang up for curing. The distance between the lath, general arrangement of shed and management thereof, as to ventilation, admission of light, &c., must be attended to. Air and light, having a great influence on the curing and fixing of color, must be used to the best advantage in catering to the tastes of the trade, which, by the way, are subject to frequent changes; sometimes light tobacco is in demand and again dark will only meet a ready sale. Strange, but true, frequently when we have it dark the buyers want it light and *vice versa*.

In removing plants to the shed after cutting various devices are used. Sleds, wagons of various styles, or any way in which you succeed without breaking or bruising the leaf is a good plan, and the quickest way, with these ends accomplished, is the best.

Stripping.

By the middle of December, and after, whenever the plant is sufficiently pliable by moisture to strip or handle it without injury, you can strip it; assorting leaves is one of the prominent features in the stripping process. All solid leaves should be kept separate as wrappers, and these sorted into hands of ten or twelve leaves, each hand tied at the but by a single leaf. All leaves in the same hand should be of the same length. The hands should then be assorted with reference to length into two or three sizes. All defective leaves should be treated alike and put up separately, the respective qualities being bulked separately, ready for market.

Packing.

The packing or casing is generally done by parties buying it from the grower. I would further add, that so much depends upon little details in the management of a tobacco crop, to bring about the best and highest results, that the details cannot be presented intelligibly on paper or even conveyed verbally.

General Remarks.

A personal observation during the season with a practical grower is so highly advantageous, that I regard it as almost indispensable to success. All professions and trades require a course of reading and an apprenticeship. Why should we not devote a season to the acquisition of the information so highly essential to success, and which relieves us of much loss of time and expense in experimenting?

The large quantity of inferior tobacco constantly upon the market is the best evidence of the importance of this feature in the business.

NEW PROCESS OF BUTTER AND CHEESE MAKING.

The last number of that thoroughly excellent dairy paper, the *American Dairyman*, contains an article which we reproduce here, describing a new process of making butter and cheese. Our friends, the farmers' wives, who have tired of the weary work of churning, will perhaps see in the new way at least a hope of deliverance from an onerous task which has full many a time caused them, with tired arms and aching back, to ask if life is really worth living. Says the *Dairyman:*

The air is full of novelties. One would have thought that the centrifugal milk separator was enough to satisfy the most ardent admirer of ingenious contrivances in aid of the hard-worked dairy maid; but now a voice is heard, this time from Germany, which promises to spare for the future all labor in the manufacture of butter and cheese, these articles being engaged to submit themselves to the wand of a new magician, whose delicate touch will henceforth compel them to extract themselves from their liquid matrix, while their old time tormenter is, I dare not say asleep, for we all know that the "fermiere" never sleeps, but attending to other matters no less important to the well-being of her family.

We all know that, if a quantity of cream wrapped in several folds of cloth be buried in the ground, at the end of twenty or thirty hours the water will be found to have left the cream, and the solid particles remaining, well washed to expel the casein, will give a remarkably pure, well flavored butter. The weight of earth resting on the enveloped cream: is the active agent in this change—a change gentle and slow, like all the operations of the great Mother.

Again: if milk is coagulated by the use of rennet, or by allowing it to turn itself by the formation of lactic acid, a mass is found gathered together in the surrounding whey, which mass, being dried by pressure, is cheese. These facts have been laid hold of by a German lady who, following out her investigation on the true principles of induction, has contrived a machine by which butter and cheese may be almost said to make themselves. In butter making the cream is put into clean linen bags surrounded by two or three folds of coarse canvas. No pressure is employed for the first twelve hours; then weights are gradually applied in increased proportions, until at the end of the second day the sack is opened, and the pure butter is found freed from all buttermilk. The manufacture of cheese can be conducted on the same plan, but the ultimate pressure must be greater. The most perfect cleanliness must be observed in this as in every other process connected with the dairy.

The inventrix of this method, after having

submitted the products of her ingenuity to the inspection of Messrs. Luss, Brandt and Nawrocki, of Berlin, believes that she has a right to state the gain in butter is 10 per cent. and 20 to 25 per cent. in cheese; *e. g.*:

MONTHLY AVERAGE MILK TO ONE POUND CHEESE.

	Ordinary Method.	Zieman's Met od.
January, 1878	5 lit. 7/10	4 lit. 7/10
March, "	6	4.5
April, "	6	4 2-9
May, "	6 1/2	4.3

MONTHLY AVERAGE MILK TO ONE POUND BUTTER.

January, 1878	17 lit. 3/4	12 3/4
March, "	16 1/4	12 11-15
April, "	16 1/2	11 8 9
May, "	16 1/2	11 4-9

Dr. Petri has analyzed the butter and the buttermilk, which test confirms the practical results of the Zieman process:

ANALYSIS OF BUTTERMILK.

	Old Way.	Zieman's Way.
Water	94 21	91.78
Albumen	2.05	3.75
Milk sugar	1.30	2.60
Fat	1.75	1.03
Lactic acid	0.25	0.30
Ash	0.44	0.44
	100 00	100 00

ANALYSIS OF BUTTER.

Water	15.07	9.76
Fat	82.17	88.91
Albumen	1.72	0.48
Milk sugar	0.42	0 30
Ash	0 62	0 55
	100.00	100.00

The "litre" is to the Imperial quart as 61 is to 67.

If we consider that it is the object of the butter maker to get rid of as much of the albumen and lactic acid as possible, these matters being destructive to the keeping properties of the product, and to retain as much as possible of the fat and milk sugar, we shall see that the Zieman process is eminently qualified as to obtain the desired end. There is also a diminution in the quantity of water retained, its place being occupied by the fat; but the grand point practically is the expulsion of an extra 1.24 per cent. of albumen. This is the substance that plays the mischief with all our butters, giving them the cheesy smell and taste, and, like all matters containing nitrogen,* rendering them liable to every description of change on the least provocation. In this the Zieman process seems to equal the old Devonshire plan of heating the milk after a certain number of hours of repose from the time of milking. I may as well give a description of this latter process, as I am anxious to have it tried by private individuals, feeling convinced that it gives less trouble, requires fewer utensils, and produces butter which is superior in flavor and in keeping qualities to any other in use.

The pans for milk intended to be treated after the Devonshire fashion should be made of the strongest tin. They may hold from two and a-half to three gallons, and the top should be considerably wider than the bottom, say in proportion of three to two. The milk must be strained into these vessels, and remain in the coolest possible place in summer, unmoved and unshaken, until the cream has risen. Thirty-six hours in winter will be the outside time necessary—less if the temperature be kept at about 50 deg. F.—and in summer the greatest care must be taken that not even the smallest acetification takes place; sixteen hours, however, will be the average safe time. If the milk curdle, farewell to all hopes of butter. We are now ready to heat the milk—on the stove in this country, but a "water-bath" would be preferable. Place the pans carefully, without shaking, on top of the stove, which should be only moderately warm to start with, and very gradually raise the temperature. A ring will shortly be seen to form on the cream; this ring, which will be of the same size as the bottom of the pan, should be carefully watched. In a short time it will swell and thicken; as the milk approaches the boiling point the whole cream will present a rough, blistery appearance, the color will become more or less orange brown according to the richness of the milk, and the pan must be gently removed to the dairy to cool. If the ring break, which it will do if the heat exceed 210 degrees F., the cream will mix with the milk, and the batch will be in a great measure ruined. Great care should be taken to raise the fire by degrees, as otherwise the butter will have a "fire-fang" flavor. If these hints are sedulously attended to, I guarantee perfect success on the first attempt.

When cool, the "scaled," or "clouted," or "clotted" cream may be taken off in an almost solid cake—delicious, indeed, when eaten with apple tart, very few cloves in a muslin bag, and no lemon peel, if you please, or any other arrangement of flesh or preserved fruit, but the oleaginous particles render it unfit for tea and coffee. How long does this cream take to churn? I have done it in forty-five seconds—it has never taken three minutes. The way is this: put the cream into any vessel and stir it round with the hand, or, if that is considered objectionable, with a spoon or wooden spatula. The butter forms in small grains. There is hardly any buttermilk, and what there is will be very superior to ordinary new milk. Put the grains, when come, into cold water, and then wash carefully, finishing the process as you would in the ordinary way.

The reason why this butter will keep good twenty-four hours longer than that made in any other way seems to me to be that, as albumen is the main cause of butter spoiling, and as albumen coagulates at a temperature much below boiling point (212 deg. F.,) the enemy is deprived of his power in the first instance by heat; and subsequently, owing to the granular form of the butter when submitted to the influence of cold water, is eliminated from the mass, the butter remaining a nearly pure compound of water, sugar and fat, with a trifling percentage of ash (mineral matter;) thus the lactic acid, having nothing to act upon, sulkily stays behind, a mere caput mortum, incapable of offence.

*Commonly called "Portein compounds." Proteus was a sea god of inferior rank who kept the sea-calves (seals?) of Neptune:

"Omne cum Proteus pecus egit altos
Visere montes,"

as our friend Horace says. He was, like Mr. Weller's friend, "the red-faced Nixon," gifted with the power of prophecy; but was so adverse to exercising his power that he would not open his lips except under compulsion, to avoid which he used to transform himself into various shapes, and give those who wished to consult him as much trouble as a refractory gamin before a police magistrate.

THE CHATHAM CREAMERY.

John I. Carter sends us the following description of his creamery, situated near the village of Chatham, Londongrove township, which has been in successful operation for a year and a half:

A description of the establishment may be of some interest, as several of its arrangement are new and original. The building itself is a handsome three-story building, 34x40, tastily finished and neatly painted, with a 19½ feet water wheel in it, which furnishes the power for churning, grinding feed, cutting sausage and such operations as are likely to be needed around such an establishment. The lower story is the milk and churn room, abundantly supplied with the purest cold water, which comes from three wells and two springs all within a distance of fifty yards, and supplying a large reservoir from which the water is piped with a heavy fall into the milk tanks. These tanks are made of brick and cement, are two feet wide and twenty inches in depth.

The milk cans, twenty inches deep and eight inches in diameter, holding 15 quarts of milk, are set in these tanks as quickly as possible and when full the whole is covered by a large pan, resting upon the sides of the tank and the tops of the cans, thus thoroughly protecting them from all dust, dirt, or taints of any kind. This covering pan is four inches deep, and into it flows a strong stream of water, filling the pan, then flowing over into the tank among the milk cans, filling the tank to within an inch of the top when it passes out. By this arrangement the milk is cooled from the top and all around by a constantly flowing stream of cold water, insuring its rapid and perfect cooling, and its thorough protection from all injurious influences—atmospheric or otherwise.

At the end of twelve or twenty-four hours, with the milk still sweet, the cream is mostly poured off the cans, finishing the operation with a conical dipper, and is immediately churned—thus churning every day except Sundays. As the whole operation from the setting of the milk till the churning of the cream is conducted with dispatch, the risk of damage to milk or cream is greatly lessened. After churning till the butter reaches the fish egg state, it is washed in brine, worked on Embree's butter worker, printed on Rapp's automatic press and stored in a refrigerator room for shipment. Notwithstanding nearly one-third of this room is occupied with the water wheel and gearing of it, with these simple and compact arrangements it is ample to accomodate the milk of 500 cows. In an attached kitchen one of Gorton's steamers furnishes the steam and hot water for the inevitable washing of the numerous pans.

The pig pen, which is a necessary adjunct to a butter factory, is a building 48x34 with an 18 foot feed room attached. This building is also neatly finished and painted, with ventilators and sky lights in the roof. The pig pen proper divided into sixteen pens—eight on each side of a four foot entry in the centre. Next the entry are the troughs and feeding floors five feet wide, then a cemented manure yard of five feet and then a sleeping room of five feet more, all of course enclosed. The pens are divided by partitions, and a gate over the manure yard, which being opened and swung around closes the pigs on the feeding floor and leaves the manure yard open from one end to the other for convenient cleaning, which is done every few days. The pigs are found to do well in this pen, as actual weighing has found them to gain on milk alone, 1¼ lbs. per day for weeks at a time.

Near this pen is a calf house 18x20, divided somewhat like the pig pen, into a four feet entry, with opposite rows of calves standing on a four foot floor, with three feet manure yard behind them, and a meal trough in front. The house holds twenty calves, which are fed sweet skimmed milk made warm and given all the oil cake meal they will eat, occasionally alternating with a meal of corn, oats and bran, ground in equal parts. These calves have also as a general thing done well, sometimes gaining as much as 2 to 2½ pounds per day. They are sold at 6 to 10 weeks old, for veals.

OUR REVISED FRUIT LIST.

Since the last publication of our fruit list, we have for satisfactory reasons changed our opinion with respect to a few of the fruits which it contained. But in regard to the list as a whole we can see no just grounds for disturbing it. Indeed, we do not see how it can be improved for this section of country, or as a general list for all the Middle States. Some of each of the separate selections may not do well upon one premise that will succeed admirably on another. Each grower must find out for himself the particular apples, pears, &c., especially adapted to his soil and location.

According to our present preference, we should select the following for our own planting:

Standard Pears.

1. Giffard,
2. Doyenne d' Ete,
3. Early Catharine,
4. Kirtland,
5. Bloodgood,
6. Summer Julienne,
7. Tyson,
8. Brandywine,
9. Bartlett,
10. Belle Lucrative,
11. Manning's Elizabeth,
12. Seckel,
13. Howell,
14. Anjou,
15. Shelden,
16. St. Ghislan,
17. Lawrence,
18. Reading.

For those who may desire a smaller number, we should select; 1. Giffard; 2. Early Catharine; 3. Bloodgood; 4. Tyson; 5. Bartlett; 6. Belle Lucrative; 7. Seckel; 8. Lawrence; 9. Reading. They ripen in about the order they are arranged.

In the above list, from No. 1 to 8 are sum-

mer varieties; from 9 to 16 autumn (early and late;) and 17 and 18 winter, thus affording a sufficient number for each of the periods of the best known sorts for this region.

Dwarf Pears.

1. St. Michael d'Archange
2. Bartlett,
3. Comice,
4. Rostiezer,
5. Diel,
6. Tyson.
7. Belle Lucrative,
8. Lawrence,
9. Ott.
10. Louise Bonne,
11. Bosc,
12. Boussock.
13. Glout Morceau.

Apples.

1. Maiden's Blush,
2. Baldwin,
3. Smokehouse,
4. Northern Spy,
5. Smith's Cider,
6. Fallawater,
7. Cornell's Fancy,
8. Red Astrachan,
9. Wagener,
10. Porter,
11. Gravenstein,
12. Tompkin's King,
13. Roxbury Russet.

We add to the foregoing list Tompkin's King and Roxbury Russet, both most excellent varieties; indeed the King is regarded by some as unsurpassed. Northern Spy is also restored.

Peaches.

1. Crawford's Early,
2. Hale's Early,
3. York Early,
4. Old Mixon,
5. Crawford's Late,
6. Ward's Late,
7. Smock's Late,
8. Susquehanna.

There is no solid reason to change this list so far as it goes. We suggested to peach-growers to favor us with a list of their own, and a few did, but where they differed from ours we did not deem them an improvement.

Grapes.

1. Telegraph,
2. Concord,
3. Hartford,
4. Clinton,
5. Salem,
6. Rogers' No. 32.

We have added to the list Rogers' No. 32, which, should it maintain its present character, will be the best out-door variety cultivated. It is a beautiful pink, or rather maroon, colored grape, and at times is transparent. It bears regular crops yearly with us. Clinton, in the foregoing list, is only for wine, and is probably the very best for that purpose.

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 Guigno,
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.

Strawberries.

1. Captain Jack,
2. Seth Boyden,
3. Sharpless,
4. Triomphe de Gand.

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.

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. Keep clear of the giants and their big prices.

Blackberries.

1. New Rochelle,
2. Missouri Cluster,
3. Wilson's Early,
4. Snyder.

The Snyder, a new Western Blackberry, is highly spoken of at distant points, but we prefer to wait another year before recommending it, in the meantime giving it a trial.

It is better that those who intend to cultivate fruit and have to make purchases, to take this list with them to the nursery, and adhere to it as far as possible.

In selecting fruit trees, or any others, be careful to choose those with smooth, healthy-looking bark, 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.*

HINTS FOR MARCH WORK.

Spring Work.—The spring of the Almanac now begins; but the spring-like weather during a large portion of this winter has allowed the spring work of the Middle, Southern and Western States, to be greatly forwarded. For the first time in many years, the writer has been ploughing through nearly the whole of January, and hundreds of other farmers have done the same. Fencing, ditching, clearing woodlands and even sowing grass-seed, has been extensively done, as though spring had already come. Sometimes "the most haste is the worst speed," and it remains to be seen, if, after all, the season's work will be benefited. It is a peculiar time, in which caution should be exercised, lest work done too soon, may need to be done over again.

A Strong Plant Digests its Food better than a weak one; and its appetite, so to speak, is more vigorous, precisely as is that of a strong, healthy young animal. It is with the plant as with the animal; early feeding, and vigor of growth, bring early and vigorous maturity. The farmer should study to get early a strong and healthy growth.

Fodder Crops.—It has been proved repeatedly, that one acre of good green fodder will feed two cows through the summer. Fodder crops must be put in early. A mixture of oats and peas is the best crop for early cutting, to come in after the first clover, which follows the rye. The two sown together will yield, on one acre, about as much as if sown separately on two acres. This may be doubted, but it is true. Tall growing leafy oats, and tall peas, yield the most fodder; the "Black-eye Marrowfat" pea, grown in Canada as a field crop, is the best for our use, the seed being free from weevil. For a second crop, the earliest small "Canada Gray" pea may be sown. The fodder is in the best condition for cutting when the peas are in full blossom.

Grass Lands.—It is a mistake to suppose that our climate forbids the success of permanent grass for meadows and pastures. If the right kind of land is chosen, low, moist, and full of vegetable matter, and is kept well manured, and occasionally re-seeded, we can have permanent grass as well as other countries. But it is necessary to sow, and encourage a number of kinds of grass, those with creeping roots being preferable, if the quality is good. This subject is worthy of study and experiment.

Poultry.—"The early chick gets the early worm," and the sooner begins to feed itself. March pullets are those which fill the egg basket in the winter time. Therefore set all the broody hens for which eggs can be procured as soon as possible, and take great care of the chicks which come in this month. A warm run out of doors may be made under a hot-bed sash, arranged between two coops, and laid on boards set on their edges.

The Fruit Garden.

In selecting a spot for a fruit garden, choose a warm place, and as near the house as possible, that it may be both convenient for gathering, and more secure from trespassers. The soil should be well drained, deep, mellow, and enriched with well rotted manure. The importance of a good selection of varieties cannot be too strongly insisted upon. For a list of the leading kinds of the various fruits see the January number Notes; for others see the Catalogue of dealers. The selecting of new sorts for the main reliance, is not recommended. Let the bulk of the planting be of old, and thoroughly tested varieties, rather than of new and untried kinds

Planting.—So soon as the ground is settled, plant the trees, shrubs, etc., that they may get an early start, and be well established by the time drouths come. Like animals, much depends on early growth.

Blackberries and Raspberries start very early, and it is best to set them in the fall; but very early in the spring will answer. The canes produced this year will bear the fruit the following season.

Strawberries.—Old beds are to be uncovered. The method of cultivating the vines in rows three feet apart, is now generally considered the most satisfactory. See article and engraving of the "Sharpless" Strawberry, on page 103 of this number.

Grapes.—Every farmer's family should have all the grapes they can eat, from September to January. It is not necessary to have a large vineyard for this; a few vines, each of the best sorts, and properly treated, will give a great amount of fruit. There are hundreds of out-of-the-way places where a vine may be set, such as along a fence, or it may be by the side of a shed or barn; with good soil, and care in pruning, satisfactory returns may be expected.—*American Agriculturist.*

COUNTRY ROAD MAKING.

The transportation question is one of greatest importance to American farmers. It is probable, however, that the phase of this subject that has been least discussed by public journals—the making and mending of country roads—is quite as important and less understood than any other. A large propor- of American farm products never reach the railroads. They are consumed on the farm or in the villages and cities whither the farmer's team and wagon convey them. Most of these farmers live so far from market that one full day at least is consumed in marketing a load of produce. If the roads are uniformly good and level a team will draw two tons of grain more easily than on ordinary roads they will draw half that amount. This may seem to some too great a difference, but it is because we have too few really good roads. Too little attention is paid to grading. In a long stretch of level roads, a slight hill may compel every teamster to put on much less than he should be able to do. In such case it would be better to grade the hill, if that be possible, or go around it. The measure of value of a road is what a team can draw over the hardest part of it.

There is a decided increase in the selling value of farms which always have a good and level road to market. I do not believe the importance of having good roads is appreciated as it should and will be, but there is already an understanding on this subject which makes intelligent road improvement profitable. As a rule, most of the work annually put upon country highways is wasted. Consciousness of this fact is one reason why such work is generally shirked as far as possible. Most men will not work at their road tax as they do on their farms for themselves. If they could know that their work on the road was as directly for their own benefit as that which they do in every day farm work, this would not be so. To have men engage earnestly in road making, it must be shown that their labors are producing good results. As it is worse now, very often the harder men work the worse will be the roads.

The severe winters and superabundant rains and snows of our northern climate, make the keeping of roads in repair extremely difficult. We have hardly begun to appreciate the importance of underdraining to keep roads in good order. It is, on all heavy soils, the first thing to be done. In neighboorhoods where farmers underdrain their land, the roads are much better than where they do not. Very often the drain crosses the road, and always at a point where it will be of most advantage. With an underdrain three feet deep crossing a road, and usually in a depression, it should be easy to keep a long stretch of road always dry. This is the place to put in a piece of macadam turnpike—two or three

layers of stone lightly covered with earth and gravel. The macadam turnpike is really a thoroughly drained road-bed when it is perfect. The reason why it so often fails is because in many places there is no outlet to the drain. The water runs under the road to some depression, and there lies until winter frosts have lifted the stones from their foundation and left road a quagmire as soon as the spring came. If the macadam road-bed is connected with an underdrain it will obviate this trouble and make a firm and permanent road-bed.

Piling loose earth and sods in the centre of the road may be somewhat better than leaving the surface level. But if the soil is vegetable matter, sods and the like, the more it is piled up, the worse the road-bed will surely be. Nothing will do any good except to first remove surplus water by stone or tile underdrains. When this is done, it is surprising how little stone or gravel is needed. I am glad that road-makers are learning to use more gravel; but in thousands of places drawing gravel to throw on an undrained turnpike is nearly a waste of labor.—*Country Gentleman.*

MORE ABOUT SORGHUM SUGAR.

Not long ago the Cane Growers' Convention met in St. Louis, and a large number were in attendance. Mr. Belcher, the expert of the association, made a number of interesting statements concerning his experiments, that show what possibilities there are in sorghum and corn stalks. His experiments were of a nature to greatly encourage those who look forward to a time when this country shall be emancipated from paying the tribute of $100,000,000 we are now compelled to send annually to Cuba and other sugar growing countries. The samples of sorghum juice tested by him showed the presence of sugar running from 4.47 to 12.86 per cent., the lower figures having been obtained from unripe and the latter from matured cane later in the season. Some even tested up to 14½ degrees; the juice of Cuban cane was from 14 to 16. What is not definitely known is whether there are substances present in sorghum juice that are not to be found in true sugar cane. Everywhere the results were satisfactory. Large sums of money have been invested in the sorghum sugar interest and with very fair results. At Chrystal Lake, in Indiana, 45,000 pounds of most excellent sugar were turned out from the sugar making establishment located there, and that, too, from very inferior juice expressed from unripe cane. The president of this company asserts that cane with juice testing up to 10 degrees can be ground up one day and at once converted into sugar, ready for ma ket the following day. All the facts developed corroborate what Commissioner Le Duc has so often told us.

The fact is abundantly proven that both sorghum and corn cane contain saccharine juices of a grade sufficiently high to make sugar from profitably. What is now needed is the skill and intelligence necessary to carry forward the process. It is something new, and not to be learned in a single day. In consideration of the vast interests involved, it seems the part of wisdom in Congress to make such appropriations as shall eventuate in carrying forward the experiments now making by private associations and individuals to a successful conclusion. No man can estimate fully what an advantage it would be to this country if we could grow cane in sufficient quantities to free us from our present dependence on foreign countries. It would add another source of great agricultural wealth to our farmers, which is, at the present time, almost entirely neglected; one, too, which would be restricted to no limits of latitude or longitude, but which can be grown successfully all over the country. It is an interest which the government will do well to foster. It can make no appropriations that will return an equal amount of benefits for the sums expended.—*New Era.*

THE MANUFACTURE OF BEET SUGAR.

The Legislature of Delaware, in 1876, appropriated $300 to be paid out as an encouragement for the growing of sugar beets in the State; and at the session of 1878 the amount was increased to $1,500, and a commission, cosisting of Messrs. Lea Pusey, of Wilmington, S. B. Cooper, of Kent, and T. B. Giles, of Sussex county, appointed to offer premiums to the growers of sugar beets. The commission obtained pure Imperial sugar beet seed from abroad, which they distributed to farmers who desired to raise them. With the seed were furnished documents containing instructions as to the character of the soil needed and its preparation, the time of planting, cultivation and harvesting, also copies of the following conditions as the principal ones to be observed: "Select a suitable soil; use fertilizers or well rotted manure; deep plowing in the fall or early spring; straight rows and close together, and plenty of seed; early and frequent working and careful thinning to one beet in a place; place one beet to every 120 or 200 square inches, which will give from 30,000 to 50,000 beets per acre, which, in rich land, will weigh from one to two pounds each."

Result of the Experiment.

The action of the commission induced a large number of farmers in Delaware to commence the culture of the sugar beet as an experiment, and premiums were awarded for the growth of 1878 to twenty-two farmers in Kent county, ten in New Castle county, and one in Sussex county. The reports from the various parties contain a description of the soil, the time of plowing, and the mode of cultivation. The premiums for the growth of 1879 were $100 for the best one acre and upwards grown under contract; $75 for second best; $50 for the the third, and $25 for the fourth. This action of the Commission stimulated the farmers, and, during the past year, from 75 to 100 of them, principally in Kent and New Castle counties, cultivated the beet with an aggregate production of about 600 tons. The result of the experiment was considered so favorable that a company was formed under the name of the Delaware Beet Sugar Co., to erect a factory for the purpose of manufacturing sugar from the beet. A lot was purchased on the line of the P. W. and B. R. R. four miles north of Wilmington, and about six months ago a brick building was erected, in which the work was to be carried on. About four months ago the machinery necessary for the operations was set in motion, and since that time has been in constant operation.

How the Sugar is Obtained.

Last week Mr. Coleman, city editor of the *Ledger*, in company with other gentleman, visited the works, and gives the following description of the processes connected with this new and promising industry.

The method adopted for the manufacture of the sugar is known as the diffusion process. The beets are first placed in a cylinder of wood, with slight openings, and thoroughly washed, after which they are conveyed by an elevator to the second story and emptied into a cutting machine, where they are cut into thin slices, and from there carried by another elevator into the diffusion battery. This arrangement consists of eight iron tanks, each holding about 1,500 pounds of cut beets, into which the water is introduced. The water is started in one of the tanks, and, after passing through it, is conveyed to the outside by means of pipes, which connect all the tanks, so that the water from the first tank flows through each, thus absorbing all the sugar possible. When the water has thus become impregnated, it is shut off and the juice, as it is now termed, is withdrawn and conveyed to larger iron tanks, where lime is introduced with the juice, so as to absorb its impurities. Carbonic acid gas is then introduced to precipitate the lime, after which the production is run through bone black to clarify it. From these tanks the juice is passed to a steam pump, where it is forced to the filer presses, which still further extract impurities. From here it is conveyed into the vacuum pan, where it is concentrated almost to the crystallization point.

After having passed through this process, the juice is placed in iron wagons and run into a room with a temperature of about 125 degress, where it remains from four to five days, when it is ready for the last process, which consists in passing the juice through a centrifugal machine. This revolves at the rate of 1500 revolutions per minute, and from one end runs the molasses or syrup, and from a box a dark yellow substance, known as raw sugar, is taken, and which is sold to the refiners.

The capacity of the present works is 25 tons of green beets per day, but it is expected to increase them to 200 as the cultivation of the beet increases throughout the State. The product so far has been from eight to over eighteen tons per acre, and the price realized was about $4 per ton. After extracting the sugar from the beet, the pulp is sold to farmers, at $1 per ton, and used by them as food for cattle.

The only other establishment now making sugar from beets is one in Maine, and one or two in California.

RECLAIMING SWAMPY LAND.

A writer in referring to the reclaiming of swampy land, says: The treatment of swampy land is usually bad, and this is worse, as such land can generally be made the best. The difficulty is in the work, which is too often badly planned and worse carried out. With proper management these boggy plains can be made the very best meadow land; also superior for corn, producing indeed any crop, if rotation be practiced. Usually, however, as the substratum is mostly clay, timothy and other grasses are best adapted, and may be put in permanently. First, of course, there must be drainage, carefully and thoroughly done, by open or blind ditches, or both, as the situation may require. Next the vegetable material must be removed, leaving sufficient, say a few inches, to mix with the hard soil below, being careful that an equal distribution is secured. It is best to plow in the fall or winter, throwing up to the frosts and snows. If there is a fair proportion of sand and a thorough winter action, a mellow surface might be secured in the spring. But whether a crop may be ventured upon depends upon other things, as where a considerable depth of muck had rested upon the soil, preventing the sun and frost from reaching it, thus leaving it in a raw state, little calculated to successfully grow any crop, though exhibiting a mellow seed bed. But with little peat or water to obstruct the heat and cold, the land approaching the condition of sod, there is more prospect of success, especially if a coat of ripe manure follow the plowing.

The better way (because the safe way,) is to forego a spring crop, and put the soil in thorough condition during the summer, working manure in to aid in the preparation, also lime, if an acid taste shows it is lacking, applied in the spring. Thus the vegetable material, sometimes tough and difficult to manage, can be reduced by mellowness and mixed with the heavier soil. Grass seed may be sown in the fall, or any grain crop in the following spring. I would not advise wheat sown with the grass seed, as the soil may lack the necessary compactness. The most difficult thing in the whole operation is the first plowing, requiring often three horses, with a stout man at the plow, to keep it at its proper depth, and see that every tussock is inverted or removed. The first plowing done well, there will be little difficulty afterwards. The action of the elements during the year, and the free use of the plow, cultivator and harrow, have a wonderful effect in reducing to mellowness, making new land of it and the easiest to work.

TRANSPLANTING OF TREES.

As the season is approaching for the setting of fruit-trees, I have taken up my pen to record a little of an old man's experience and observation.

First the selection of soil, and situation. If possible select sloping land, east or south, where the trees will be protected from the cold northwest winds. If the ground is too moist it should be underdrained, for the trees will not thrive if their roots are continually soaked in water. All sandy plains should be discarded, when hilly land can be had. Boulders will have no disadvantage if the soil is deep and strong, for I have seen some as productive orchards on land of this description as I ever saw in my life, and the land suitable for no other purpose but grazing. The land should be well plowed and planted with some crop for one year; and if new land, or where there has never been an orchard before, it will want but very little if any stable manure; a few bushels of wood-ashes, plaster and lime are all that will be necessary.

Distance from thirty-five to forty feet will will be near enough. Holes need not be over a foot deep, but four or five feet broad; if a hard-pan underneath it should not be broken, for it will make a pond of water under the tree and be sure death to it. When setting the tree, raise a pyramid in the centre of the hole, sloping gradually to the outer edge, high enough to set on the heel of the tree at the depth it stood in the nursery. Afterwards remove all the wounded roots by cutting; cut back one-half the top in the crown and leave what laterals that are not wounded. Set in the tree, spread out the lateral rooots, put in fine earth and fill up level; don't tread down too hard about the roots of the tree, for it will get full hard enough. I have found loose stones the *best mulch*, for they will prevent the tree from blowing out and keep the ground cool.

From my observation thousands of trees are destroyed every year through the ignorance and stupidity of the planters in selecting the soil. In no case would I water a tree, for I have never watered one in my life and I have set out thousands.

Situation of trees and varieties. Buy good trees and pay a good price for them; they are the cheapest in the end. In no case set a root-graft, for they are worthless. If you can get the trees near home it is as well to do it, if not I think it matters but little if the soil and planting are all right, provided you get good seedling stocks, not hide-bound things; but the planter must remember that the best of trees will do nothing on poor, uncongenial soil; it will only be a vexation and loss of time and money.

Varieties. The Baldwin stands first as among apples in New England. I have had a hundred varieties on my farms and only six or seven are worth the ground they stand on for making money. For Rockingham county, N. H., I would set ten Baldwins to one of any other variety. I would begin with the Red Astrachan, Porter, Gravenstein, Pound Sweet, Danvers Sweet and Baldwin. All these have been successful with me.—*Germantown Telegraph.*

SHOULD WE ABOLISH OXEN.

The following answer to this question was made at the January meeting of the Eastern experimental farm club by Thomas Wood, of West Marlborough:

The first part of this question had been formerly referred to me and answered against laying aside the good and faithful ox and substituting the expensive horse or the treacherous mule. In the first place the cost of a good pair of horses or mules will be about twice as much as a good pair of oxen, and will cost more than twice as much to keep in harness, and nearly twice as much for feed. Horses and mules must be regularly fed with grain, while working oxen generally keep in fair condition with hay or grass, and to do many kinds of work on a farm are handier than horses. They can be geared or ungeared in about half the time, and less than half the time is taken in currying and otherwise caring for oxen that is spent with horses and mules. Furthermore when oxen have worked a few years they may be fattened and sold for what they cost and with this we can buy a younger pair and continue to keep up the team without an additional cost, as oxen often bring enough when fattened to pay not only first cost, but interest on it also, and can be made fat for market with less than half the amount of grain fed to the working horse or mule during the time the oxen were worked. The horse not only costs twice as much as the ox and is more expensive whilst working, but is a total loss when he gets too old to be serviceable and the money paid for it is gone. I am not advocating the disuse of horses and mules, as horses are a sort of necessity for driving and for many purposes on a farm, but as a matter of economy every farmer having more work on the farm than a pair of horses can do should have oxen, unless we could adopt the French rule to eat our horses when they get too old for work. As to the other part of the question I don't feel qualified to suggest an improvement or condemn the present ox yoke.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular monthly meeting of the Lancaster County Agricultural and Horticultural Society was held Monday afternoon, March 1st, in the Society's rooms.

The meeting was called to order by the Vice President, Henry M. Engle.

The following members were in attendance: Joseph F. Witmer, Paradise; Calvin Cooper, Bird-in-Hand; Simon P. Eby, city; Henry Kurtz, Mount Joy; Casper Hiller, Conestoga; Christ. A. Gast, city; Martin D. Kendig, Creswell; J. M. Johnston, city; F. R. Diffenderffer, city; J. C. Linville, Salisbury; Daniel Smeych, city; John Huber, Warwick; Henry M. Engle, Marietta; Elias Hershey, Paradise; John B. Erb, Strasburg; Robert Dysart, city; Samuel Binkley, Warwick; Webster L. Hershey, Landisville; Washington L. Hershey, Chickies; C. L. Hunsecker, Manheim; W. H. Brosius, Drumore; Dr. C. A. Greene, city; Levi S. Reist, Manheim; John H. Landis, Manor; Peter S. Reist, Lititz; E. S. Hoover, Manheim; William McComsey, city; Dr. S. S. Rathvon, city; Peter S. Hershey, city; Jacob B. Garber, Columbia; Johnson Miller, Warwick; Israel L. Landis, city; Enos B. Engle, Marietta; Simon E. Hershey, West Hempfield.

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

Crop Reports.

Henry Kurtz reported wheat as looking very well. It seems to have continued growing all winter Grass is not so good. Has himself plowed under some clover. Tobacco is nearly all sold.

J. C. Linville reported wheat as very good. Fruit buds are pushing rapidly, maples are in bloom and the bees are at work on them. Sheep have done well; feeders of cattle have also been successful.

Resolutions of Respect.

Calvin Cooper reported the following:

WHEREAS, It is with deep regret that we have lost one of our late associates, Christian M. Hostetter; therefore,

Resolved, That while we bow in submission to the work of an overruling Providence, we have lost an active co-laborer in the cause of agriculture.

Resolved, That it is with sorrow we think of his removal while yet in the prime of life, and tender the friends of the deceased our sincere regrets, trusting that our loss has been his gain.

Resolved, That a copy of these resolutions be sent to his friends.

The resolutions were spoken on by Mr. Eby and unanimously adopted.

Apple Culture.

Mr. Casper Hiller read the following essay:

The day was, in the recollection of many yet living, that Lancaster county was one of the greatest apple growing sections in the country. Then apples rarely ever failed. Every other year was called the apple year, though the off-year usually produced fruit in abundance for home use. Well I know that we picked wagon beds full of apples and hauled them to the distillery to have them converted into apple-jack, to keep them from spoiling (?). The hogs reveled in the orchards and got fat, and the cellars were filled with winter apples, that were free to every comer, and in the spring there was often such a surplus that they had to be carried out to the hogs. In those days there was no available distant market for apples.

Then twenty-five cents a bushel was a fair price for winter apples, and they were often sold as low as ten cents a bushel. But a change has come over these things. For many years the apple crop has been uncertain, sometimes failing altogether, but frequently plentiful enough, but defective and ripening before its proper season, so that often we have no fruit about the holidays.

The result of this is that our five or ten acre orchards have disappeared, and in their place we see half acre or acre orchards, and in many places no orchard at all.

But with all these discouragements in apple culture, are not these very orchards after all paying better averages than the rest of the acres of the farm? They generally supply the family with all the fruit needed during summer, fall and early winter, supply all the dried fruit, applebutter and vinegar needed during the year.

It must not be forgotten that fruit is necessary to health. If it is not grown at home, the household will be often short of a supply, especially in the summer season.

If a supply is to be kept up by purchases, the bills during the year could not be paid by the profits of an acre of wheat or corn. These things should be sufficient inducement for us to attempt to grow fruit.

It is a question, too, worthy of our consideration, whether we have been doing all we could to grow better fruit and more of it.

The most careless observer, no doubt, has noted occasionally a tree of some well known variety produce a much better fruit than its fellows; or, sometimes an orchard that from some cause is much better than the average. If these trees or orchards have received different treatment from others, we should learn what it is and imitate the treatment. If they are caused by location, influence of soil, water supply, shelter, &c., why then by all means let us select, if possible, just such conditions.

My own observation of late years has made me a great believer in water supply, not necessarily running water, but a soil retentive of moisture.

Deep clay loams, or swamps so drained as to take away surface water, would be my first choice for orchard location. A northern slope, where the sun has little influence on the ground, is also good. All good corn land is adapted for growing trees, but the tendency in many of these to dry to the depth of several feet in our scorching dry summers, that have become the rule of late years, is the cause, perhaps, more than all others combined, to produce our premature ripening of apples. To counteract this dryness, to imitate the natural moisture that we find in some clay soils, requires our best efforts. To effect this, much can be done by frequent and thorough cultivation and by mulching.

Mr. Meechan, editor of the *Gardener's Monthly*, one of the best authorities on horticulture in the country, thinks stirring of the soil unnecessary. He advocates the sowing of grass and the making of one or two crops of hay annually, with a good dressing of manure also every year. Some of our Lancaster county hill sides are entirely too washy to permit thorough and continued cultivation. Here the grass system will answer a good purpose if we leave every second crop, and occasionally every crop, spread over the surface as a mulch, and be sure not to forget the manure.

Our winter varieties of apples could be much improved by mulching around the trees with straw, leaves, tan-bark or even stones. Stones are excellent for retaining moisture in the ground, and where they are plenty it would be worthy of trial to cover the ground under the trees with them.

What varieties shall we plant? This is a difficult question to answer. Some kinds do well in a certain locality, or soil, while they fail in others. If the fruit is wanted principally for home use, considerable variety is required to keep up a rotation during the summer, fall and winter. If a home market is to be supplied, summer and fall apples should be planted.

If for distant markets, or a winter supply, the varieties should be few. Every planter, to be successful, should know what kinds are adapted to his soil, and should plant them almost exclusively.

I have seen the Smokehouse for several years past growing in a rich clay loam, where the roots could dip into running water, the fruit coming to perfection, and keeping in prime condition until after the holidays. If any one has such a soil and situation he may plant the Smokehouse, to any number of trees, with a great prospect of success.

But in such situations many other varieties would flourish. The Baldwin would do well, and even the Newtown Pippin and Bellflower could be grown profitably.

On higher ground the varieties that are reliable winter apples are not plentiful. Smith's Cider is promising, and the York Imperial is one of the most reliable varieties we have.

I would not be understood to say that no other varieties are worthy of being planted, but, as I said

before, the planter should know what varieties are adapted to his situation.

Mr. Hiller was asked his opinion of the Russet apple. On hillsides it will not do. It requires a good deal of moisture, which it can not have in such situations.

Dr. Green said he believed the time will come when every farmer will be able to take up a handful of his soil and be able to tell precisely what he needs to make it most productive. The most successful farmer in New England is a chemist who in reality was never taught farming; chemistry was his guide and led him to fortune. This matter of understanding soils; is all important; with a full knowledge there will be no failure in any crop the agriculturist undertakes to grow. He also advised experiments to be made on the various kinds of remedies to guard against insect ravages; to learn what is effectual and to practice it; he believed millions of dollars worth of fruit can be annually saved.

S. P. Eby could not understand why we fail in growing fruits now, whereas we once grew them most profusely on the same kind of soil we now plant the trees on. The soil is the same. Even virgin soil no longer gives the answer. Our climate has changed. We have less snow and more open winters. Cutting away our forests has done the work. That is the source of this trouble of ours. It is not a matter of soils so much as of climate. Birds have been driven away because the forests are gone. The insect armies have poured in in consequence and have ruined our fruit crops.

Casper Hiller stated that better wheat, corn, tobacco and grass are now grown than 40 years ago, and yet the same elements very nearly enter into these that enter into fruits. In wet seasons we often grow fine apple crops. Can it be the rain that does all this? The elements must certainly be in the soil, and chemistry seems unable to account for our fruit failures.

Henry Kurtz believed additions to the soil as well as climate were necessary. Experiment is the thing needed. He wanted to see a return of the time when we could buy apples at six cents a bushel, as we once did.

J. C. Linville did not believe chemistry could cure all our ills. Analysis of soils are very good theoretically, but actual experiment is still better. The season goes ahead of chemistry many times. Farmers must find out these things for themselves. He spoke a good word for the Romanite apple, now generally neglected.

Webster L. Hershey said chemistry is the stepping stone to agriculture. But it is not all, other things come into play.

H. M. Engle agreed generally with Mr. Hiller's essay. We, perhaps, grumble too much. After all we grow pretty good crops, even though we can't come up to what was done in growing fruits fifty years ago. He still believed we could grow paying fruit crops. Insects, in his opinion, were our greatest danger and drawback. If we can counteract the ravages of insects, we can restore the golden age of fruit growing. Sitting still and lamenting will do no good; let us go to work and discover remedies. The coddling moth is the greatest enemy the fruit grower has. Let us theorize less and experiment more.

On motion the discussion of this subject was closed.

Referred Questions.

By what means and in what way can the growing of forest trees be most encouraged, and the timber land of the State be best protected? This question having been referred to Levi S. Reist, he read the law passed by the last Legislature, pointed out its defects, and made suggestions which he believed would more effectually answer the purpose.

In answer to the question how to encourage the planting and protection of trees, I would answer, organize State and County Forest Tree Associations at such places where the forest has been cleared away. There is a United States Forest Association in existence, of which Dr. Warder, of South Bend, Ohio, is President. Offering premiums is perhaps the best method of inducing farmers to plant trees, but by whom they should be offered is a perplexing question. The Berks County Agricultural Society offered premiums for the largest number of fruit trees planted in a given time, and it had a stimulating effect; but our society is not able financially to offer premiums. I would therefore suggest that a law be passed by our Legislature to authorize our County Commissioners to pay about every three years $500 in different sums to the one who has planted the largest number of trees—say $200 as the highest, reducing the premiums until the $500 is expended. We must induce the coming boy to plant trees. The father ought to offer small premiums. As money is the great lever to sway nations, and even politics, why not little boys. If fathers would encourage boys to gather forest tree seed and nuts in the fall, and offer as a premium only 10 cents for trees raised from seed when two feet high, this generally would induce them to raise trees. They would soon delight in nourishing them. It would become a nucleus of a useful home education; it would be a benefit to themselves, and a benefit to their country.

John H. Landis alluded to the extraordinary destruction of the timber of the State which has been going on during the past fifty years. He read a part of the report of the Secretary of the State Board of Agriculture on this subject, in which the protection of existing forests and the planting of new ones was most strenuously insisted upon. He did not believe that the present law on this subject would produce the desired result. He read a bill introduced by himself, also, on this subject, to which he invited criticism and suggestion.

S. P. Eby suggested that joint stock companies might undertake the work. Cheap, useless lands might be bought and planted with trees and the answer might in this way be brought about. He closed by saying:

I had fully intended to take part in this discussion, but upon examination of the subject have become convinced that its great importance, and the numerous facts and authorities bearing upon the question of the value of forests, their influence upon streams, temperature, climate and rain fall, cannot be properly considered in the brief space of time necessarily allotted to discussions before the society. I have therefore concluded to put my views on paper, and expect to present them to the members at some future meeting.

Levi S. Reist said he had personally set out over 700 forest trees on his farms.

C. L. Hunsecker said this was no new thing. Fifty years ago the question was agitated. He thought this question was a bugaboo; houses can be built of other things than wood; so can bridges and most other things now made of wood.

W. H. Brosius thought trees should be planted as a speculation. The planter may reap no benefit from his act, but some one else will. His heirs may make a fortune out of his foresight.

E. S. Hoover, H. M. Engle, Dr. Greene, W. H. Brosius, John L. Landis, S. P. Eby, and others, discussed the timber question very thoroughly. The general opinion was that it was high time that some stringent law should be enacted to not only preserve what still remains to us of our forests, but to provide for our future timber needs. It was stated that many farmers were cutting down their fine groves of forest trees in order to get virgin soil on which to plant tobacco.

Casper Hiller remarked that when we plant forest trees we do not do so solely for the benefit of future generations. Thirty-three years ago he planted pines which are to-day 20 inches in diameter; larches, planted 10 years later, are 15 inches in diameter, and sugar maples, planted at the same time, are now three feet in circumference. He did not have much faith in legislation on this subject; self-interest will in the end govern farmers.

On motion, the further discussion of this question was postponed.

Clover Seed.

Calvin Cooper to whom was referred the question "Why does the second crop of clover produce more seed than the first?" answered it as follows:

In the question why does the second crop of clover produce more seed than the first, I might answer simply that there are more heads. That the first crop does produce seed there is no doubt, and that there are as many seeds to the head, if allowed to fully mature, I fully believe. Who ever heard of the first crop being taken for seed? I am sure I never have, although I have made considerable inquiry. That there is seed in the first crop I have grown, my own observation gave abundant evidence, I have frequently, in feeding clover hay, found it in considerable quantity on the floor or entry where the hay was thrown. And I doubt not that if the grass had been grown with a view of gathering seed instead of hay, there would be as many seeds on an average to the head as there would be in the second crop. But the prevailing custom is to cut the first crop for hay, knowing the second will come in ample time for seed, and at a season, too, when the farmer is not so pressed with work in harvesting his crops. There are also several reasons why the second crop should be taken in preference: First, a crop of hay is wanted for stock during the whole year, which, as I said before, can be taken and allowed sufficient time for the second crop to mature in season. Then, too, the first is more or less mixed with other grasses of spontaneous growth, or for a purpose sown in connection with the clover for hay. Second, the first crop does not throw out as many branches or laterals as the second, and it also comes into head irregularly. Hence there would be less heads from the crown of the plant, and maturing at different times, it would be difficult to cut at the proper time to save all the seed. While the second, starting as it does in the middle of the season when the plant (or rather root) should be in its most vigorous condition, immediately after the cutting, forces out a new growth from every eye, and in a few days we find the field green with the foliage from the young growth; these rapidly develop, and in a month or six weeks, the field is red with bloom, and, as you have doubtless observed, continues in that condition but a short time, showing conclusively, that if left undisturbed as it should be from the first cutting, that the bloom is all developed about the same time, hence the seed would mature evenly, and a better crop be obtained. That there are conditions of the weather favorable to the production is beyond doubt. Most plants blooming during a wet time suffer a loss to a greater or less extent of their power to produce seed.

J. C. Linville thought it was positively settled that the first crop of clover yielded less seed than second crop and of a far inferior quality. He believed the common bumble bee is a prominent factor in fertillizing clover. Early in the season there was very few of these, but when the second crop comes along they are very plenty, and lend their aid in fertilizing the few of these, but when the second crop comes along they are very plenty, and lend their aid in fertilizing the second crop of clover. He would protect the bumble bees and does so on the farm.

H. M. Engle also believed the bumble bee was an involuntary agent in the distribution of pollen, but was not willing to go to the extent advocated by Mr Linville. He believed the first crop of clover grows too rank, and for that reason is not so productive of seeds.

The Next Fair.

The Board of Managers, to whom was referred the question of holding a fair next fall, reported through E. S. Hoover that the late Park grounds were about to be converted into other uses, and that they have not yet succeeded in having an interview with the proprietor. He believed they could get the Northern Market House again for this purpose.

The matter of holding a fair next fall was discussed by several members, and there was a disposition manifested not to go into the thing unless the farmers manifest more interest than they have heretofore done. The exhibition last year was a matter of reproach to the agricultural interest of this great county. Assurances of better support are required.

On motion of Mr. Linville, the Board of Managers was instructed to procure the Northern Market House in which to hold a fair next fall.

A motion was made and carried to instruct the Board to prepare a premium list to be offered to exhibitors.

Jacob T. Whitson was nominated and elected to membership.

Fruit on Exhibition.

Levi S. Reist had on exhibition some choice specimens of Lady Fingers or Sheep Nose, Smith's Cider, Romanite and Conestoga Pippin apples.

Miscellaneous Business.

The bond of the Treasurer, M. D. Kendig, was approved and accepted.

Several miscellaneous bills were presented and ordered to be paid.

The thanks of the Society were tendered to J. H. Landis for a number of volumes of agricultural reports from various other States—Ohio, Kansas, New Hamshire and Vermont.

A motion was made and carried instructing the Secretary to effect a settlement with the former treasurer.

Question for Discussion.

Does it pay to cut fodder for stock? Referred to William Brosius.

Root crops. Referred to Henry M. Engle.

Is the American Agricultural Society likely to be a benefit to the farming community? Referred to Calvin Cooper.

Israel L. Landis requested to have his name taken from the list of Board of Managers, because he will be absent much of the time and will be unable to give proper attention to the duties of the position. His resignation was accepted.

There being no further business the Society adjourned.

POULTRY ASSOCIATION.

The Lancaster County Poultry Association held its regular monthly meeting Monday morning, March 1st., in their rooms over the City Hall. The meeting was called to order by Vice President Geyer.

The following members were present: John A. Stober, Schoeneck; Frank Griest, F. R. Dillenderffer, J. M. Johnston, Chas. E. Long, J. B. Lichty, W. W. Griest, city; W. L. Hershey, Chickies; H. H. Tshudy, Lititz; William A. Schoenberger, city; G. A. Geyer, Spring Garden; Henry Wissler, Columbia; M. L. Grider, Rapho; C. E. Gast, city; W. J. Kafroth, West Earl; John C. Linville, Salisbury; Jacob B. Long, Chas. Lippold, Joseph Trissler, city; Peter S. Reist, Lititz; Joseph F. Witmer, Paradise; T. Frank Evans, Lititz; Ferdinand Scheaffer, city; Addison Flowers, Mt. Joy; Jos. A. E. Carpenter, city; H. S. Garber, Mt. Joy.

The minutes of the last meeting were read and on motion approved.

Reports of Committees.

H. H. Tshudy, on the part of the committee appointed to audit the accounts of the Treasurer, reported progress only, the other members of the committee being absent.

Election of New Members.

D. Rine Hertz, of Ephrata, John M. Grider, of Mountville, Johnson Miller, of Warwick, Sebastian

Keller, of Elizabethtown, and John Garber, of Elizabethtown, were nominated and elected to membership.

Election of Officers.

The President nominated Messrs. Carpenter and Hershey as tellers during the election of officers of the Society for the current year.

Charles E. Long arose and said he withdrew his name as a candidate for President. He said he had heard some of the country members had intended to cut him because it was charged that he exhibited a bird at the last exhibition which was not his own, contrary to the rules governing the exhibition. He explained how the bird he exhibited came into his possession, and how it was again returned to its former owner. By his explanation the origin of the report was fully shown. He believed the fowl exhibited to be fully his own, and he exhibited it as such. Several other members made explanatory remarks aiding in clearing up the transaction.

On motion, the matter was dropped.

A vote for President was then had, which resulted as follows: S. N. Warfel, 22 votes; S. S. Spencer, 4 votes, and Charles E. Long, 2 votes.

The President announced Mr. S. N. Warfel to be the successful candidate, and a motion was madeto instruct the Secretary to inform him of the fact and to request him to accept the honor. Carried.

W. A. Schoenberger was nominated to fill the vacancy on the Executive Committee which would be occasioned by the retirement of Mr. Warfel to assume the Presidency of the society.

How Early in the Season Shall We Set Our Hens?

W. J. Kafroth said it was always time to set hens—winter as well as summer.

Mr. Buch believed the latter part of February was as early as hens could be set safely. Young birds need grass and they can't get this earlier. Chicks hatched in the latter part of January or February do not do so well as those hatched later.

Mr. Flowers agreed with the latter speaker. His March chicks have always beaten the January and Febroary ones by far.

H. H. Tshudy thought much depended on the weather. If that was favorable, he believed the earlier they were hatched the better. Among some farmers the belief is prevaleut that late chickens—hatched at harvest time—are the best. All things considered, he believed March the best month to hatch chicks.

J. Trissler believed any month prior to June and July was equally good. Early chicks, as a rule, are best.

J. M. Johnston, who had some of the chicks hatched in the incubator, reported them all dead. He took too good care of them altogether.

Others reported success with these little waifs, who are thriving finely.

Mr. Johnston held a private inquest over one of his chicks and described the symptoms of disease manifested with all the minuteness of a coroner's physician, and no doubt came about as near the true cause as such inquests usually do.

Mr. Frank Greist was the essayist of the day, and read the following:

Did the larger varieties of fowls at the late exhibition receive a sufficient number of premiums as compared with the smaller varieties?

The first difficulty that presents itself is the division into larger and smaller varieties, but for the purpose of answering this question we will say first that those which from an utilitarian point of view are of most value—the Asiatics and Plymouth Rocks, together, of course, with the turkeys, ducks and geese—are the larger fowls, and that all others shall be classed among the smaller varieties. According to this division (not counting entries for the four special premiums, amounting to $25, $10 of which was taken by small fowls) there were 65 entries of large fowls, paying entry fees of $32.50, and carrying off premiums amounting to $31. As opposed to this, there were 143 entries of the smaller varieties, paying entry fees of $58.50 and receiving premiums of $36.50. That is, each entry of large fowls paid to the exhibition 50 cents and received from it 47½ cents nearly, a gain for the association of 2½ cents on each entry, while in the smaller varieties each entry gave to the exhibition 41 1-5 cents, and received from it an average of 61 cents, the exhibition losing on each entry 19 4-5 cents.

The average loss on each pigeon entry was 25 cents; canaries, 50 cents; Polish, 83⅓ cents. Except Dorkings and turkeys, where the 50 cents entry fee was all gain, they having received no premiums, the largest average gain was in Plymouth Rocks, 50 cents.

Omitting pigeons, canaries and the parrot from this calculation, we have seventy varieties of smaller fowls, giving $40.50 and taking $50.50, making an average loss of 14 2-7 cents on each entry.

Excluding special cash premiums above mentioned and the entries therefore, the average loss throughout on each entry was 12 4-5 cents; iueluding them, 18 cents.

It was stated before the exhibitiou that the entry fees would pay the premiums, and as no one objected to this I suppose every one considered that to be about right. The sequel shows that they lacked $40 of doing this, and as the entries were even greater in number than was expected, this deficiency can only be accounted for on the hypothesis that entirely too many premiums were given to the smaller fowls.

This has been blamed on the pigeons, but the loss on them is only about half of the total loss.

What is the object in raising poultry? To obtain flesh, eggs and feathers. Then the poultry most needed is that which best answers this purpose—furnish good flesh and eggs for the table, and lay and propagate most rapidly. Are Bantams, Games and Polish on the one hand, or Brahmas, Cochins, Plymouth Rocks and Leghorus on the other, best fitted for this? Most emphatically the latter. I doubt whether there is a man in Lancaster county, choosing from the standpoint of usefulness, who would not take the Plymouth Rock exhibit in preference to the whole batch of pigeons, although the former took but $3 in premiums to the latter's $34½.

It may be held that we should cultivate fowls for beauty, as well as for utility, but should not those which are pre-eminently both of these receive more consideratiou at the hands of an association of poultry raisers than varieties which are purely ornamental? And what fowls on exhibition were more beautiful than some of the Brahmas and Cochins?

It is also an acknowledged fact that it is easier to get bantams that will count a higher score than larger fowls.

Taking all these into consideration, I not only believe that the larger fowls received too few premiums at the Lancaster County Exhibition, but that they do at nearly all similiar exhibitions throughout the country. Your Secretary will tell you that out of $700 lost on premiums in thirteen exhibitions from which he has recently heard, only $91 was lost on Asiatics, Plymouth Rocks and Spanish and about $450 on Games, Hamburgs, Bantams, Polish and Pigeons.

From away "down East" the Secretary of the Southern Massachusetts Poultry Association sends his laments. He thinks there should be some revision respecting the pigeon department, and suggests that throughout no premiums should be paid when there is no competition. This would of course make the list of the premiums much smaller, and would pecuniarly benefit the association, but yet would not equalize matters sufficiently to give the larger fowls a chance.

When competition is between large and small fowls, a discount of 5 per cent. might put them more nearly on equal footing.

Less bantams weigh higher points—that is, the less valuable they are as a marketable bird, the higher will they score.

Mr. Greist's essay did not find favor with the breeders of pigeons, who thought their favorites got scant treatment.

Secretary Lichty had gone to a good deal of trouble to get some light on the subject. He had thirty replies from secretaries of Poultry Associations giving their views. From an analysis of these replies he found that Dark and Light Brahmas, Cochins and Plymouth Rocks were the most profitable varieties to Societies; the smaller and pet varieties particularly famous for running away with the premiums of exhibitions. The general conclusion was that the smaller classes get to many premiums.

Chas. E. Long thanked Mr. Griest for his essay, and also thought the Secretary ought to be commended for the trouble he had gone to in securing the facts he had given us. He believed the larger varieties got all they were entitled to at the late exhibition. He contended the premiums were fairly awarded—as fairly as they were at any show. He joined issue with Mr. Greist for classing Game birds with the smaller varieties.

John A. Stober believed the objectof poultry shows was to improve the breeds of fowls. He had tried many kinds; he now breeds Brown Leghorns and thinks more of them than any of the larger breeds he has ever had.

J. B. Long has also breed many kinds; he has found the Black Cochins to be the greatest layers of them all. He gave the facts to prove what he said.

H. H. Tshudy said Mr. Stober has not got far enough yet. When he gets Plymouth Rocks he will change his opinion, and when Mr. Long's Black Cochins begin to hatch, he will also change his views.

Secretary Lichty thought too much attention was given to money premiums; awards are worth far more than their mere money valne.

The discussion on this subject took a wide range, and much entertaining information was elicited.

Question for Discussion,

Is there any way to reduce the flying propensities of Leghorns? Referred to Jacob B. Long.

There being no further business the society adjourned.

LINNÆAN SOCIETY.

A stated meeting of the Linnæan Society was held on Saturday, February 28, 1880, President Rev. J. S. Stahr in the chair. After attending to the opening duties the donations to the museum were examined, and found to consist of a fine specimen of fish, caught below the dam at Columbia, and sent per Mr. Geo. F. Rathvon, and submitted to J. Stauffer, chairman of the committee on ichthiology for a name, which he gave as the *Ambloplites rupestris*, a fish only known in Lake Erie and the Western waters, and new for the Susquehanna. A specimen of ore. A dark colored large tooth, sent last October by Geo. D. Boggs, Elizabethtown, and by him supposed to be a fossil tooth. On inspection it has not attained the stage of a fossil, and proves to be the tooth of a horse.

A bottle containing one of a number of singular productions, passed by a respectable female of this city, similar to those claimed by Doctor Campbell to have been crabs, a year ago, by one of his patients. This is intended to be submitted to Dr. Davis for a microscopic inspection, to determine its character. One bottle, having a singular growth found, on what they call fish-bred, an algæe or fungus growth, not inspected—both deposited by S. S. Rathvon. Several very large, flattish, circular beans, from a pod said to attain four feet in length; also, thin, flat double seeds, with fine silky wings, two inches on each side, from some shrub, no doubt similar to the catalpa bean or tree, together with 9 leaves of palm leaf—part of a sacred book of the Burmah religion, and a translation; title, "Justice and Mercy Reconciled;" donated by Miss Salome S. Lefevre, who had been a missionary in Burmah for years. For the inspection of the members present she also had on exhibition a book in leaves about 3½ inches wide and 20 inches long, embossed with raised letters of a shiny black polish on a gilded ground, and a gorgeously colored envelope or cover—quite a curiosity, but no one volunteered to read the title even. Sculptured idols, artistically made, together with richly colored pictures of some of their gods and goddesses, such as the Krishna and Radhika, or the Monkey God; Kali, the bloody war goddess; Gaueh, the Elephant God; Mohader, or Lakkhia and Swaraswati, two daughters of Mohadar. These water-color paiutings are in the oriental style, rich in color smoothly laid on, but like those of the Chinese or Japanese, not remarkable for perspective skill or thruthful outline. A framed bouquet of flowers per Mrs. Zell from specimen collected in Palestine by Miss Lefevre, the "Rose of Sharon" occupying the centre. Mr. Rathvon exhibited a full large flower of the hellebore, called Christmas rose, wondering why this was not more cultivated, as it yields flowers in succession, from December to April, out of doors, when no flowers are about.

To the historical section, Chas. A. Heinitsh, esq., added a revenue tax receipt from Leonard Eicholtz, dated Feb. 21, 1816—on saddles, Jas. Humes, collector. S. S. Rathvon, four envelopes containing clippings of historical interest.

To the library. Proceedings of the Academy of Natural Science, Philadelphia, Part II., April to October, 1879. The Lancaster *Farmer* for February. No. 1, *Scientific Advocate*; editor, A. Green, Atco, N. J. Sunday-school book notices and catalogues.

Papers read: J. Stauffer read an illustrated paper, No 537, on the fish named by him as the *Ambloplites rupestris*, and from a copy of it sent to S. S. Baird, secretary of the Smithsonian society, the name was pronounced correct and it is considered new for the waters of Pennsylvania, and of interest, Prof. Baird desiring the loan of the specimen to compare it with those they have from the Western waters. S. S. Rathvon read a miscellaneous record of articles deposited and whence taken.

New business: Miss Salome S. Lefevre was proposed and unanimously elected a corresponding member of this society, and on motion a vote of cordial thanks was given her for the pleasure afforded by the display of Indian curiosities and her explanation as well as for the desirable specimens donated to the society.

The President, Rev. J. S. Stahr, asked if the society could not publish a small monthly sheet of its proceedings? A motion was then made that a committee of three be appointed to ascertain the cost and expediency so to do and exchange with other societies. The motion was agreed to, when Mr. Stauffer nominated Rev. J. S. Stahr, S. S. Rathvon and Rev. Dr. J. H. Dubbs as that committee, and they were agreed to. Mr. Rathvon reported a bill for alcohol; ordered to be paid. The treasurer was authorized to subscribe for the *Science Advocate* for one year.

Under scientific miscellany the religion and products of Burmah was discussed, or rather commented upon, and after spending a few hours in a highly interesting and profitable manner the society adjourned.

SUBSCRIBERS will please consult the little lable on their paper, and see if their subscriptiou is paid up to 1880, if not, they would confer a favor by attending to the matter immediately.

AGRICULTURE.

Sugar in America—Its Introduction.

In the spring of 1856, the editor of the *American Agriculturist* received a small parcel of sorghum seed from Messrs. Vilmorin, Andreux & Co., the noted seedsmen of Paris, who had brought it from China. It was planted in rich garden soil, and grew 13 to 15 feet high, maturing its seed well. The children of the neighborhood found the juices of the stalks so sweet that they used up a large part of the three rows 25 feet in length. A sketch of one of the plants was made and published, with a description in this journal for February, 1857. It was subsequently announced that the seed would be distributed among our readers, to be divided equally among all who should send an envelope directed to themselves—say from 25 to 50 seeds each. This publication brought samples to the office from three other parties within 30 miles of New York city. Soon after a stranger came in and tried hard to buy all our seed. When his offer reached $8 a pound, he was informed that it would not be sold at any price, as it was already *promised* to our readers. He then produced a newspaper item from the West, where he had been traveling, and said the interest was so great that he could divide a pound into a hundred or more parcels and sell them quickly at $1.00 a parcel. As soon as he left the office, the editor sent out and bought all the seed in the three localities he had heard of, at $5 a pound. At the same time he wrote to the Paris seedsmen to send him all the seed they had, and draw on him for the pay. To his surprise—consternation almost—they returned word by the next steamer that they had shipped 1,000 pounds (no Atlantic Cable then) and held 600 pounds more to his order. The whole was ordered at once, and when the 1,000 pounds arrived it was immediately announced that none of it would be sold, but that a packet of at least 400 seeds would be *presented* to any reader of the *American Agriculturist* who desired it—enough to experiment with and to provide an abundant supply of plants the next year if it proved valuable. *Thirty-one thousand* (31,000) parcels were distributed to our readers throught the country, and planted. Enough was saved and sent to Georgia to grow 34,500 lbs. (17¼ tons) of seed, during the Summer of 1857. This was sent to this office, and a full pound was given to every reader desiring it for 1858—over 30,000 pound parcels were thus distributed.

From the above seed thus widely and freely scattered was produced at least nine-tenths of all the sorghum grown in this country. (A small quantity was sent out from the Patent Office, and some sold by dealers.) Hundreds of millions of gallons of syrup were made and used during the war when the usual supply of Southern grown sugar was cut off. It was worth many millions of dollars to the country. But such difficulty was experienced in producing good *sugar* that the cultivation fell off after the supply of South grown sugar came in. Quite a "boom" was started later on by high claims asserted for a variety called the African "Imphee," but this soon died out. Recently, the improved processes of obtaining the saccharine matter in chrystalline form, as sugar, have given a new impetus, and promising results are anticipated.

About Rotten Manure.

The *Germantown Telegraph* says:

At a meeting of farmers and fruit-growers some time ago, there was considerable discussion on the question of fermented manure. One speaker thought that it did no harm to the manure left behind to have the black liquid run away from it, as this was a sign that it was being thoroughly decomposed. Others appear to have taken the stand that everything in the manure-heap was of value as it stood. We do not understand that the one who thought the manure was the better for the black liquid going out from it attached no value to the black liquid; perhaps he would utilize this in some other way. The report is obscure on this point; but it is still a novel point to make that the manure-pile is the better for its absence.

In some first-class works on agriculture, where recommendations are often made on "perfect farming," without any regard to the means at hand to carry out the recommendations contained in the book, it has been insisted on that the best results are obtained from barnyard manure when a cistern is built at the foot of the manure pile, and the liquid contents daily pumped over the whole solid mass. We do not know that anyone ever went to work to do just this thing, for many of the *practical* recommendations of these books, written as if they had actually been done, are too often but the writers' idea of what ought to be done. Still, the recommendation by the intelligent men shows how much they value this "black" material, and how very different is the recommendation now offered.

It is one of the most remarkable phases of agriculture that advocates can be found—intelligent advocates—for the most opposing views; and it is a sad reflection on any supposed science in agriculture. It is not long since we noticed in our columns that though the practical farmer—those who watch results—had for years been coming to the conclusion that it was best to keep manure covered from the rain, one of our most progressive Chester county farmers has taken the ground that it was absolutely useless. This friend will probably consort with our present one, who regards draining the manure heap as no loss to it. Still there is a science in agriculture, and especially in the management of manures. We hold that when there is any great contradiction in results, such as is here indicated, it is because the real principle at the bottom of the practice has not been reached. The shell has been in hand only, there is a kernal at the bottom of it all. For our part we like to note this apparent diversity of conclusions from the same facts, as it compels us to look deeper for the cause.

Some Corn in Illinois.

The corn crop of the single State of Illinois for the year 1879 is reported to be 305,813,377 bushels, and estimated to be worth $97,483,052, or about 31½ cents per bushel. It is difficult for the mind to take in the full magnitude of these figures. Here are some calculations that will help the conception: Load this corn upon wagons, 40 bushels to the load, and start them off on the road so near together that there shall be 100 teams in every mile. The line of wagons carrying this one crop of Illinois corn would stretch away 76,452 miles, or *more than three times around the world!*—Again: Load this crop upon railway freight cars, 285½ bushels or about 8 tons to the car, and make up these cars into a continuous freight train, allowing 30 feet of track to each car. The train would extend 6,080 miles, or nearly twice across the continent, from the Atlantic to the Pacific Oceans!—Again: Suppose we put this corn crop into a *square bin* 20 feet deep. Let the arithmetical young readers of the *American Agriculturalist* reckon how large this bin would be each way. Also, how many acres it would cover.—Also, how many pounds of pork it would make if given to pigs weighing 100 lbs. each when they begin feeding upon the corn, and 250 lbs. when killed for pork.—*American Agriculturist for March* 1.

Notes for the Farmer.

It has been discovered that the South Carolina willow, which grows very plentifully in that State, is equal to the best imported basket willow, and it is thought the cultivation and shipment of this material may become an important industry.

The potatoe crop of the country is estimated at 181,369,000 bushels. Compared with 1878 there was an increase of three per cent, in acreage, and the yield is estimated by the Department of Agriculture at 98 bushels per acre, against 69 bushels last year, and 94 in 1874.

The grand secret of manuring for corn is to keep the fertility near the surface when applied, and it is rare that another course is advisable. It is best to harrow or brush, so distribute more evenly, and then by shallow ploughing prevent loss of nitrogen.—*Dr. Sturtevant.*

Nitrate of Soda,

or Chilli Saltpetre, is one of the leading mineral fertilizers supplied from the immense deposits in the rainless desert of Southern Peru. Attention was first called to it by Alexander von Humbolt, in the early part of this century, but it is not over fifty years ago that it was first shipped abroad to any extent. The Nitrate of Soda industry is to-day a large and rapidly growing one, there being over 250,000 tons of this fertilizer mined and exported per year, though it is not all used upon the land, a large share going to the manufacturers of chemicals as a source of Nitric Acid. It is a formidable competitor of Peruvian Guano.—*American Agriculturist for March* 1.

HORTICULTURE.

Peas in Plenty.

"This is not a pea country," said an Englishman to us, and he was right, it is not in the sense that England is, where they can take picking after picking from the same vines. The hot sun that gives us our green corn and tomatoes, which English gardens cannot have, puts an end to our peas. But we can have them in abundance during their short season, and should have them in far greater plenty than we do. Farmers are apt to be content with two or three messes, and many find it too much trouble to grow them at all. One great obstacle to an abundance of peas, is the necessity for sticking or brushing them, but that, as we shall presently show, may be for the most part avoided. The great point with early peas is to start early; select a piece of light, dry soil, all the better if it slopes to the south, and just so soon as it can be worked, plow and harrow it, furrow out rows at least 6 inches deep, 3 feet apart for dwarfs, and 4 feet for the taller kinds. Then scatter a good supply of the best and finest manure in the furrow, and sow the peas upon the manure, if well rotted; if not, cover the manure with an inch or so of soil. Then by the use of the rake or hoe, cover to the depth of three inches. Some cover only an inch at first, and as the plants show themselves, gradually draw in the earth, until the seed is four or five inches deep; the deeper, the better the plants will stand hot weather.

Varieties.—One who looks at a catalogue, finds a puzzling list of names, and it may help them to know that for the earliest peas, there are several names for what is essentially one and the same pea. Those not familiar with the matter, should know that there are two kinds of peas, the round and the wrinkled, and that there is as much difference between them in quality, as between field corn and sweet corn. The earliest peas are round. The wrinkled peas, if wet weather comes after sowing, will rot in the ground. Then again, there are dwarf and tall sorts of both kinds; the dwarfs are a foot or less high, the others grow from two to five or more feet. It need hardly be said that the tall kinds produce more from the same land, as they have the most vine; though the dwarfs may be planted closer, they, so far as our experience goes, are not so satisfactory as the others. Great claims are made for some of the newer dwarfs, that we have not yet tried. For general use, "Daniel O'Rourke," and "Carter's First Crop," are the best very early. Then comes "Alpha," the earliest of all the wrinkled peas. For the main crop, no pea is better than "Champion of England," and probably none ever will be. This should not be sown until the ground is dry and warm, or the seed may rot. "Bishop's Long Pod" is intermediate between the early and "Champion, but a second sowing of "Alpha," a fortnight after the first, will do well for an intermediate crop.

About Brushing.—None of the market gardeners brush their peas, and while we would give brush or other support if practicable, as affording better crops, and easier picking, yet one should not go without peas because he cannot stick them. When the peas come up, the ground should be kept clean with the horse cultivator, or garden plow, and if any weeds come up in the rows, pull them out; when the peas are about six inches high, throw a furrow with a small plow towards them on each side. When they begin to fall over, turn them all to one side, and let them lie on the ground. Every two or three days, turn them over to the other side of the row, especially after a rain; this is done very rapidly by using a hoe-handle, or similar stick, running it under them, and turning over several feet of the row at once. The "Champion of England" should have some kind of support, as that is longer in growing, is taller, and yields more pickings. If brush cannot be had, use cord or wire stretched between stout stakes or posts.—*American Agriculturist for March* 1.

Peach Culture.

Thinking that some hints on the subject of peach culture might not prove uninteresting to our readers, I venture a few remarks:

Some years ago, within the recollection of our fathers, peach trees were long-lived, hardy, healthy, and bore annual crops of fruit, which was not only a source of luxury but of profit, but later on they were almost universally attacked here in Pennsylvania and many other northern states, with a disease called the yellows, which almost entirely destroyed them, since which time it is but rarely our orchards live to a greater age than 5 or 6 years, rarely bearing more than two crops, when death ensues. This is greatly to be regretted. The value of this fruit is too well known for us to abandon all hope of its successful culture again.

It is a fact known to many of us that in Kent county, eastern shore of Maryland, in vicintity of Sassafras river, peach growing is an entire success; they make it a specialty; orchards of 5,000 to 10,000 trees are quite common, and live from 15 to 20 years, the yellows being unknown.

Now it strikes me very forcibly that if our farmers would procure trees from some such healthy peach-growing region they would prove hardy, long-lived and profitable here, being free from any hereditary predisposition to this disease so fatal with us. Besides, the growers there have made this branch of fruit culture a study, have originated many valuable varieties, best suited to our markets, for canning and the tastes or wants of a progressive people, and have discarded such of the old varieties as have degenerated, or lived out their day of usefulness; a plan, I hold to be vitally essential in order for the best results, as this system of budding or breeding in and in, from one generation to another, for the perpetuation of any one variety, has a tendency to deteriorate or impair the vitality of that variety, which renders it unprofitable and should be discarded to give place for some kind more desirable.

It will not be expensive to make the experiment; let us try it.—*A Native Pennsylvanian in Intelligencer.*

Think About the Garden Now.

How often have we suggested to those having sufficient ground for garden, and especially farmers, to pay increased attention to this important appendage

of family comfort. Farmers, as a rule, are entirely too careless about their gardens, their whole minds being placed upon their field-crop, stock, &c. The women would in most cases be competent and gladly willing to take charge of a large portion of the labor necessary to the proper cultivation of the garden, if the men would prepare the ground to their hands. Indeed, it is a fact that those who pursue the cultivation of the soil as their business, rarely enjoy garden products in perfection, just because they appear to insist upon the error that they don't pay. Now is the time to think about how the garden can be enlarged and the number and quantity of the crops increased. The stuff can also be got ready for the additional fence, and the fence itself erected as soon as the weather will permit.

The little hot beds in which to raise your tomato, cabbage plants and egg plants should now be repaired and got ready for sowing the seed as soon as the time arrives and that will be from the 20th to the end of this month. One thing must be remembered, that there should be no sparing of the underlaying stratum of horse manure in preparing the beds.—*Germantown Telegraph.*

What to Put in the Garden.

Of the many hundr d of sorts of Peas, Beans, Cabbages, Corn, Sweet Corn, Lettuce, Potatoes, Tomatoes, Beets, Carrots, Cucumbers, Melons, Radishes, Turnips, Onions, etc., etc. (each variety praised by its seller), is an important question. A right choice of kinds will return many dollars worth more for the same labor and expense, even in a small garden. To help all in deciding, PETER HENDERSON, the highest authority in such matters, has tested, side by side, over 800 varieties of the above garden products, and he gives the results in the *American Agriculturist* for March 1st. This number has much other practical, seasonable information, illustrated with over 100 engravings, and is alone worth the cost of a whole year's subscription, which is only $1.50, or 4 copies for $5. ORANGE JUDD COMPANY, New York, are the publishers.

Apples.

Apples, in addition to being a delicious fruit, make a pleasant medicine. A raw, mellow apple is digested in an hour and a-half; while boiled cabbage requires five hours. The most healthy dessert that can be placed on a table is a baked apple. If eaten frequently at breakfast, with coarse bread and butter, without meat or flesh of any kind, it has an admirable effect on the general system, often removing constipation, correcting acidities, and cooling off febrile conditions more effectually than the most approved medicines. If families could be induced to substitute them for pies, cakes and sweetmeats, with which their children are frequently stuffed, there would be a diminution in the total sum of doctors' bills in a single year sufficient to lay in a stock of this delicious fruit for the whole season's use.

DOMESTIC ECONOMY.

Ventilation of Sleeping Rooms.

One must use judgment in the ventilation of bedrooms, not to let in too much air at a time, to avoid all drafts, and in the coldest nights not to allow the room to become as cold as the outside atmosphere, but there must be an inlet for pure air, and an outlet for bad air, from some source. If two persons are to occupy a bedroom during a night, let them step upon weighing scales as they retire, and then again in the morning, and they will find their actual weight is at least a pound less in the morning. Frequently there will be a loss of two or more pounds, and the average loss throughout the year will be more than one pound—that is; during the night there is a loss of a pound of matter which has gone off from their bodies, partly from the lungs and partly through the pores of the skin. The escaped matter is carbonic acid and decayed animal matter of poisonous exhalations. This is diffused through the air, and in part absorbed by the bed clothes. If a single ounce of wool or cotton be burned in the room, it will so completely saturate the air with smoke that one can hardly breathe, though there can only be an ounce of foreign matter in the air. If an ounce be burned every half hour during the night, the air will be kept continually saturated with the smoke, unless there be an open door or window for it to escape. Now, the sixteen ounces of smoke thus formed is far less poisonous than the sixteen ounces of exhalation from the lungs and bodies of the two persons who have lost a pound in weight during the eight hours of sleeping, for while the dry smoke is mainly taken into the lungs, the damp odors from the body are absorbed into the lungs and into the pores of the whole body.—*Ex.*

How to Cook Codfish.

Many people, knowing little about codfish and perhaps only having eaten them when spoiled by cooking, have but a faint idea of their excellence when properly prepared for the table. I do not like the fish in warm weather as do some people, but when winter sets in and I can obtain good specimens, caught at what may be called at sea, there are few dishes to be compared to it. When rightly boiled, such a fish exhibits the flesh separately from the bone in solid flakes that retain their white curvature after they are distributed by the carver. Even the scraps left from such cod are never wasted, but can be made into a palatable dish by removing the flakes from the bones and skin before becoming cold, and when wanted placing them in a stew-pan with what is left of the sauce; then add a dozen or more fresh oysters with their liquor, and if these do not moisten the fish enough, and it requires to be only moistened, add a spoonful or two of melted butter. Warm carefully over a gentle fire and when once thoroughly hot through set aside. Get your dish, warm it, and surround it with fine mashed potatoes. In the middle of the dish place the warmed-up fish with its sauce; crumble over the fish grated bread-crumbs, and set in a hot oven for a few minutes until nicely browned on the top. It will prove a most desirable dish. Fresh cod cut into slices two inches thick, dressed plentifully with eggs and bread-crumbs, and fried a light brown in plenty of lard, is really delicious. At least so think some of our best families and even fastidious epicures out here in Massachusetts.—*Germantown Telegraph.*

Milk—What is It?

The natural food for the young of all mammals is milk—a rather complex fluid, the physical properties of which it is not necessary to describe. The principal constituents are water, sugar, caseine, albumin, fat, and several salts. The sugar, when separated, looks much like the ordinary kind from the cane, but is much less sweet. Caseine is one of the leading constituents, and is the part which, when removed from the milk, becomes the cheese. The caseine exists in small particles in the milk, and is contracted or gathered into large masses by the action of acids or rennet. The albumin remains in solution after the caseine is removed, and is separated by boiling, when it appears as white curds, somewhat resembling the white of eggs in appearance, as it does also in composition. The fat is not dissolved in the milk, but suspended as little globules with thin coverings. In the process of churning, these globules are broken, and the fat collects in lumps of various sizes. This fat, when worked, salted, etc., is the butter of the market and table. The ash is but a small part of the milk, and consists of a number of substances, which are left behind when the milk is dried down and burned. There are many things to influence the percentage of these various ingredients of milk. It is unlike in different species, and among cows, the breed, feed, general treatment, age of animals, etc., all have a modifying influence.—*American Agriculturist for March* 1.

Strange Taste in the Butter.

The principal causes why butter is found to be badly "off flavor" are, first, browse and weeds in the pastures, or in the hay, or coarse roots and other unsuitable feed in the stable; second, bad water, or too little of it; third, heating the cow's blood by running or abuse; fourth, uncleanly milking; fifth, setting the milk in open pans which are exposed to the fumes of cooking, or to stove-smoke or tobacco-smoke, or to cold victules set near; sixth, to keeping the cream in uncleansed vessels, or too long before churning; seventh, the use of impure salt; eighth, putting down the butter in unsuitable or ill-prepared tubs or other packages; ninth, storing it in dirty cellars, or beside kerosene, salt or smoked meat, or fish, or any other strong-odored thing. Butter is the most susceptible of taint of any article of food, and when tainted, even slightly, has lost its value. A person may have every other qualification for the business that can be thought of, yet if lacking in scrupulous neatness, is utterly unfit to be employed in butter-making. A farmer whose wife is a slattern may succeed in sheep or hogs, but never as a dairyman. Yet let every man remember that at least half our bad butter was made before the milk left the stable.

To Cure Hams or Beef.

Lay the hams on a slanting board and rub with fine salt. Let them lay forty-eight hours; then wipe off the salt with a dry towel, and to each ham take a teaspoonful of powdered saltpetre and a dessert-spoonful of coarse brown sugar and red pepper rubbed well into the fleshy part; then pack in a tub, skins down, sprinkling between each layer with fine salt. In five days cover them with pickle made as follows: To one gallon water take one and a half pounds coarse salt, one-quarter to one ounce saltpetre, and one quarter to one-half pound brown sugar. Let them lay five, six or seven weeks, according to size; beef, either ten days or two weeks. Hang them up to dry several days before smoking.

The pickle should stand and be skimmed, and must be cold. In Virginia they use no pickle, only plenty of salt rubbed on.

How to Cook Poultry.

Old poultry may be made tender and savory by the following method: Soak it in cold water with a handful or two of ashes thrown in for twenty-four hours; pick off the feathers and let it hang for twenty-four hours longer. Then let it boil for a quarter of an hour in veal broth or water; take it out, lard and bake it; when nearly done baste it with hot butter. By this method the flavor of a young chicken may be imparted to an old fowl. Poultry of all kinds requires thorough cooking, as when undergoue it is tasteless. A turkey weighing eight pounds should be baked three hours and basted every ten or fifteen minutes with its own drippings and with melted butter. If proper care is taken in dressing poultry it will not need washing. A wet cloth may be used to wipe it clean if necessary, but soaking it in water takes out the flavor. Young poultry may be known by having smooth legs and supple feet. If the legs are rough and the feet are stiff, the poultry is old and stale.

Extra Good Sausage.

This receipt was fortunately obtained in time for our own benefit this winter. The friend who gave it to me said she originated it, and I think I never tasted any better cooking or seasoning than she can do.

To every eighteen pounds of saussage-meat add three good tablespoonfuls black pepper, four tablespoonfuls salt, a little heaped, and six tablespoonfuls sage. After measuring the pepper for all your meat, weigh it, and to every half pound of black pepper put a heaping teaspoonful of cayenne pepper, and to every fifty pounds of meat put one teacupful of pulverized sugar.

As to sausage-meat, we aim to have one-third of it fat, the rest lean, but guess at it, and it is best to season the meat before the first chopping. We always chop twice and take out the stringy pieces. The second chopping also stuffs it in the skins.

This is by far the best sausage that we ever had, and can safely recommend it.—*Nellie, Germantown Telegraph.*

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 in 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.

HOUSEHOLD RECIPES.

APPLE SAUCE is the form in which the fruit most frequently appears. There is apple sauce, and apple sauce. To make the best, requires the best apples. Select high flavored fruit, such as the R. I. Greening, or Spitzenberg, pare, and slice in thick slices, and put, with the needed quantity of sugar, in a dish with a tight fitting cover. Some have a dish made for the purpose, but a tin pail with a good cover will answer. Set in a moderate oven, and allow it to stew slowly, until thoroughly done; good apples will need no water. Apple sauce so prepared, is far superior to that made in the usual way. Next in popularity to apple sauce is

APPLE PIE.—Stewed apples half an inch thick, between two flabby crusts, is a caricature on apple pie. The apple pie is made with sliced raw apples, in a very deep plate, and as few plates are deep enough, the sliced apple should be heaped up in generous measure. It is a mistake to spoil good apples with much seasoning. Cloves and allspice overcome the natural flavor; a very little cinnamon, or minute bits of the dried peel of a sweet orange, develop it. In many families, sauce and pie end the changes, while they are really but the beginning of the list. What can be better for a dessert, than

BAKED APPLES.—Either sweet or sour? Many have a notion that sweet apples are the only kinds proper for baking. They are indeed exellent—when sour ones cannot be had. But for the perfection of baked apples R. I. Greenings are required: Remove the centers with a "corer," fill the cavities with sugar, set in a baking dish with a little water, and bake rather briskly. Apples so treated, are better than most of us deserve; but if we add, as they are eaten, a liberal supply of Jersey cream!

It is but a step from apples to

APPLE DUMPLINGS. That person is not to be envied, whose recollections of childhood does not include apple dumplings—"such as mother used to make." That kind will never be found again, but a fair approach to it may be hoped for. Her's were both boiled and baked, and we never could tell which were best. Isn't the making of the crust for boiled dumplings a lost art? Well, we can manage

baked ones, and there is less risk of failure, and consequent danger to the digestion. "Both kinds of sauce if you please."

APPLE CUSTARD is not to be omitted. Pare and core the apples, stew in very little water until tender; pour over them a custard made in the usual manner, and bake until the custard is done. Housekeepers find it difficult to select a pudding-dish large enough for this.

APPLE FRITTERS are much liked by many: rather large slices of apples are sprinkled with sugar and cinnamon, allowed to lay for an hour or so; they are then dipped in a batter of flour and eggs, and fried in an abundance of very hot fat; for these, a wire frying basket is very convenient. They are drained for a few minutes, and served hot. If for dessert, they are dusted with powdered sugar when served, but if, as many prefer them, to be eaten with meat, the sugar is omitted.

BROWN BETTY.—We gave this several months ago, and will only briefly repeat. All the clean bits and fragments of bread are dried crisp in the stove oven with the door open, then rolled, and bread-crumbs are always at hand. Sliced apples, bread-crumbs, sugar, cinnamon, and a deep pudding dish. A layer of apples, sugar, spice, crumbs; apples, sugar, spice, crumbs, and so on until the dish is full. Bake.

OX-TAIL SOUP.—Take three tails, have them divided at the joints, put them in warm water to soak; put into a gallon kettle eight cloves, three onions, a few allspice, pepper, and the tails; fill with water and let boil as long as any scum rises; take it off, cover the pot and let it simmer two hours; take out the meat and cut in small mouthfuls; set the stock away until the next day; remove all the grease and put all on to boil, adding two tablespoonfuls of brown flour mixed with butter; let it simmer half an hour, then add two tablespoonfuls of catsup and two glasses of wine, and salt.—E. G. P.

PAN-DOWDY OR APPLE SLUMP.—Since wood-fires and the old bake-pan or skillet, with a cover to hold coals on the top, went out of fashion and use, an "apple slump" has not been possible. An imitation is made in a deep pan, and baked in an oven, but it is only a baked apple pudding. Probably the real thing can still be found in the lumber camps, and in a few other localities where wood is the fuel, and the open fire-place has not given way to the stove. The apples are quartered; the bake-pan is lined at the sides with a crust; apples are put in, packed solidly, some spice is used, and sufficient molasses, or part sugar, and part molasses, to sweeten; a top crust is put on, gashed to let the steam escape; the pan is set on the coals, and the coals put on the cover. Eaten hot with butter! Who can ever forget it? The side crust baked before the juice came from the apples; it then became partly penetrated with syrup; the apples were done to a rich crimson mass. Talk about apple meringues, and such flummery—Here was richness!—*American Agriculturist.*

LIVE STOCK.

Testing a Milch Cow.

I submit the following points or specifications by which the value of a cow can be ascertained for production of butter:

The word "best," as it is generally used in premium lists, has so many meanings that the committee are at a loss to know just what its fullest signification may be. Some would consider one point of great excellence, while others of the same committee would think it of little value. So far as I can learn, there is no list of points agreed upon by any agricultural society which offers premiums for that class of stock, and there is a chance for a wide variation of opinions.

For many years I have hoped that this subject would meet with that attention that it deserves. If a dairyman has a cow that is unusual in her yield of butter, her yield and treatment could be readily compared by an accepted standard of points. If he discovered in his cow certain excellencies not in the standard, he can make them known. Hoping that others of your reader will favor us with their views, I will offer a few of the requisites to be considered in making up a scale of points.

1. Breed and age of cow. If thoroughbred, what breed. If grade, how graded.
2. Time of trial after calving.
3. Number of days of trial test; not less than five days at any one trial, and not less than three trials in a year.
4. Quantity of milk in pounds (not quarts) to one pound of butter.
5. Pounds and ounces of butter when worked, salted and ready for market.
6. How the milk and cream were treated before and at the time of churning.
7. Gross weight of cow at time of giving the milk.
8. Kind and quantity of food. If pasture, what kind of grasses, and time of year.
9. Kind and quantity of grain and roots fed, if any.

All to be divided so as to make a scale, 100 to be perfection.

There may be other points that might be considered. But it seems to me that I have enough for the present. Could these points (or better ones) be adopted, those who take cows to fairs where premiums are offered, would know what was expected of them. Every part of the contest would be open to all concerned, and when committees had agreed upon their verdict, it would clearly explain their views to the competitors. In this way, as it seems to me, fair justice would be the result. The cow with the best record should draw the prize; not her owner. Each of the nine points can be readily comprehended, I trust. Brother dairymen, everywhere, please give us your views. Criticise my scale of points.—*Country Gentleman.*

How to Water Horses.

In cold weather give one pailful at a time three times a day. This is enough unless you are working them regularly; then give a little more, but not to exceed four pailfuls a day. In warm weather when they are brought in, first sponge out the mouth and nostrils well with cold water. After a few spongings they will wait for it to be done. Then give them not to exceed a pailful apiece, and after feeding give one more pailful before you commence work. Don't let them go without long enough to make them want more than this. If allowed, a thirsty horse, when warm, will drink too much. A common twelve-quart pail is the size referred to above.

The Position of Windows in Horse Stables.

We find in a German exchange some curious observations on the manner in which the position of the windows in the stable affects the eyes of a horse. In one instance the horses of a farmer—fine animals, celebrated for their excellent condition, where kept in a stable lighted only by a small window at one side. When light was needed for work, the door was temporarily left open; the result was that nearly all of these animals had eyes of unequal strength, and in time a number of them became blind on the side toward the window. A strong light directly in the horses' faces has been found to weaken the sight. The worst position of all for a stable window is in front of the horses and much higher than their heads. An officer had bought a perfectly sound mare from a gentleman whose stables were lighted by windows at the rear of the stalls. The animal was sound and perfectly satisfactory. After three months she became suddenly "ground shy;" on examining her eyes they were found directly upward, and this was explained by the fact that the windows of the officer's stable were situated above the head of the stalls, the eyes being generally drawn in that direction. She was removed to another stable, where the light was admitted from all sides, and in three months time the difficulty disappeared.

Another officer reports that during the campaign of 1870, in France, he rode a horse that was a capital jumper. On his return from the war, he placed this animal in his stable, the windows of which were above the front of the stalls, and in a short time the horse became so shy of the ground that he had to sell it. He had had a similar experience with other saddle horses, all of which became ground-shy in his stall. One animal in particular, a thoroughbred mare, renowned for her jumping qualities, refused in a short time to cross the smallest obstacle, and when forced to cross a foot-wide gully, made a leap that would have cleared a ditch fourteen feet wide. Owners of horses who find that their animals shy at objects on the ground, or at their side, would do well to look to the windows of their stables for an explanation of the evil.

Bran for Cows.

Ten years ago I was of the opinion that bran was a poor thing to feed cows, but I always like to make experiments, and so I bought some bran and mixed it with ground oats and corn and I and my wife watched pretty close for the result. It did not take long for us to find out that the cows gave more milk and butter and the butter had a finer color. I omitted the bran one week, and my cows gave four quarts of milk less. I fed bran again, and in three days they gave four quarts more milk, and since that time I will tell you how I mix my feed. To six bushels of shelled corn I add three bushels of oats and have it ground together, and with every three hundred pounds of such feed I mix one hundred pounds of bran. In the morning at seven o'clock I take one bushel cut cornfodder and one bushel oat chaff; on this I put thirteen pounds of the mixed feed and eleven quarts of water; at eight o'clock I give them eight pounds of clover hay; at eleven o'clock I pump them pure fresh water from a well forty-two feet deep. If it is a warm day I give each cow one bundle of cornfodder, out in the yard; if it is cold or cloudy I do not leave them out longer than they drink; then I put them in the stable and give the cornfodder in their racks. I also give each cow half pint of meal and half an ounce of salt; this I give them every time I put them in the stable. At five o'clock in the evening I give them the same quantity of cornfodder, chaff and mixed feed, as I do in the morning at seven o'clock. At six o'clock I give them eight pounds of meadow hay. I also clean them with the curry comb and brush twice a week, sometimes oftener. And I also clean the stable on Tuesday, Thursday and Saturday. I keep only four cows, and at the present time I milk only three of them; one of them dropped her calf Aug. 25th, one Sept. 12th, and one Nov. 17th, and I make twenty to twenty five pounds of butter a week, besides we use milk in two families.

POULTRY.

Pure Bred or Common Fowls.

The pure bred Asiatic fowl weighs from 8 to 13 pounds, and some cocks can be pushed to 16 pounds. The Leghorn fowl lays from 160 to 225 eggs per year and never wants to set. Admitting the above to be a fact, I think you can very readily see the advantage they have over the common fowl, both for market purposes, and as egg producers. It is also a satisfaction to have anything that you know is choice. Can you imagine anything more handsome than a fine flock of say Black Cochins, with their rich glossy plumage, or in fact any variety that breeds true to shape, plumage, etc. They are more expensive I will admit that they look to be at first glance, but they are not, and as a proof would call your attention to the following: Let two boys take $10.00 each, one put his out at interest; at the end of the year he has $10.80. The other buys a trio of pure bred fowls. He gets them early in the spring, and they begin to lay in March. He sets the eggs during the months of April, May, June and July. It is safe to say that the two pullets will average at least 20 eggs per month, and that at least three-quarters of them will hatch, and that the same proportion will grow up to be well developed birds, which gives him forty-five young birds, and the three old ones making forty-eight in all. Supposing these to be Asiatics, they will be worth at least 60 cents for table purposes, which gives him $28.00, allowing $8.80 for expenses, etc., connected with raising them, and he has made 100 per cent. on the original investment and still has the principal. That is good enough for the first year. The second year he can start in with a larger number, and of course his profits will be in proportion, and with proper care the average hatch will be more than three-fourths of the eggs set.

Chicken Entozooty.

Your intelligent correspondent, Mr. Larkin, of Delaware county, lately spoke of a new disease prevailing among chickens in his vicinity, which I find has extended to West Philadelphia.

A hen, apparently healthy, of the Golden Pheasant variety, was sent to me to stuff a few days ago, which had died very suddenly. In dissecting it I found a large mass of watery substance among the intestines, of a brownish yellow hue, of the consistency of calf's-foot jelly. The lower extremities of the fowl were also lined with this foreign matter mixed with blood. The liver on one side was of a pale pink hue and on the other side of the natural color. At the base of the liver, the artery which leads to the heart was of a dark olive green. The lungs were of a dark purplish color, clotted with blood; the heart of the same color, with a tinge of olive green. The natural color of the heart is dark red.

The fowl presented a rotund appearance, and about the eyes and head the symptoms which chickens usually have when suffering from a cold. It apparently had a good appetite up to the last moment, as its crop was full of wheat and small pieces of dried grass.

I have another chicken in my possession which also died very suddenly while sitting on thirteen eggs. An examination showed a dark green spot on each side of the liver, but in every other respect presented a healthy appearance. A gentleman in my neighborhood has lately lost a large number of fowls by the same fatal disease.—*Germantown Telegraph.*

Selling Eggs by Weight.

Every little now and then the agitation arises as to the propriety of selling eggs by weight instead of by number—that is so much per pound and not by the dozen. It was quite well agreed upon that while everything had some help from the law, it was hardly fair to expect an egg, of all things in the world, to stand alone. Various Legislatures have sat over this egg question, but none have hatched, until some eight or ten years ago the Legislature of Massachusetts passed a law to the effect that eight eggs must weigh a pound, and that any hen which refuses to abide by this law must work longer, and must give nine or even ten or more to justify the law. But legislation should not stop here. Our egg-plants as well as egg-laying birds do not always produce fruit of uniform size. Some, to be sure, do justice to the efforts of their raisers, but a large number offered by the venders are miserable spoils. Yet with these conscienceless fellows a dozen is a dozen, and we think it would be a great protection to the poor man if it should be declared by law that there

should be one to a pound; but then it might be asked what protection would there be to the chicken? The other day we heard a scientist say that the quantity of rain that actually fell in the Himalaya mountains reached sixty-five feet. An incredulous man standing by asked what the size of the drops were. "Drops!" answered he, "why as big as a horse bucket." "I'll never believe that; you may tell that to the marines, but not to me."—*Germantown Telegraph.*

Keep Pure Bred Fowls.

Aside from the great pleasure which it affords, it pays better to keep and to feed pure fowls than to breed and feed a lot of mongrels, which latter many do for fear of the expense of buying a few pure bred fowls to start with. In determing which breed of fowls to get, make up your mind at the start that no one breed can or does possess all the desirable qualities you are in search of. If you wish a breed for laying, get Leghorns or Hamburgs; if you wish a breed for weight, get some of the Brahmas or Cochins; and if you wish a breed principally for ornament, get the Polish; but give up the ideas of getting a grand combination of all these qualities in one breed. Make up your mind what you wish, in the way of fowls, and then select such breed as will answer those requirements best. Give them good, comfortable quarters, supply them liberally with water, giving them requisite care and attention, and you will never have cause to regret your investment in pure bred fowls.—*Moore's Rural Life.*

Feeding Poultry.

It is a common practice to throw the "chicken food" on the cold snow, sometimes where it is as deep as the fowls can well wade through, or even worse, into a regular mud hole. Neither of these methods is of advantage to the fowls; in the first case they are obliged to swallow a large amount of cold, chilling snow, and in the second, an amount of mud is taken into the stomach that is not desirable. All this discomfort could be avoided by providing a feeding trough, so arranged that the food may be clean. Aside from the looks of the practice, it will pay to be neat in feeding these animals that help to feed us.

Milk for Fowls.

An old poultry raiser, who believes in milk for fowls, says: "It is both meat and drink. Some of the finest chickens I ever saw were raised upon the free use of milk with their food. Hens lay as well, or better, when furnished with this, than upon any known article offered them."

LITERARY AND PERSONAL.

STRAWBERRY CULTURE.—Spring 1880, with a history and description of leading varieties and a price list of plants grown and for sale by M. Crawford, Cuyahoga Falls, Ohio. 24 pp. 8 vo.

A CONDENSED list of the most desirable microscopes of moderate cost and accessories, mounting implements and materials. R. & J. Beck, manufacturing opticians, London, and 1016 Chestnut St., Philadelphia, Pa. 16 pp., 8 vo., copiously illustrated.

NELLIS' FLORAL INSTRUCTOR and priced catalogue for 1880, published quarterly, at 20 cents per year by A. C. Nellis, Canijoharie, New York, 36 pages octavo, with useful tables, a copious index of contents, and 115 illustrations of choice varieties of flowering plants.

THE OHIO JOURNAL OF FLORICULTURE.—Published by Leroy S. Lamborn, propietor of Le Roi rose and plant nursery, Alliance, Ohio. 20 pp octavo, with characteristic illustrations. $1.00 a year (monthly) with a premium, without premium, 50 cents.

ILLUSTRATED AND DESCRIPTIVE CATALOGUE of Moreton Farm Seeds, for 1880, a select and choice varieties of fresh farm, garden and flower seeds, potatoes, &c., for sale by Joseph Harris, Moreton Farm, Rochester, N. Y. A 48 page, Octavo pamphlet, ful of beautiful illustrations, and detailed instructions in their cultivation.

DESCRIPTIVE CATALOGUES OF FRUITS, 24th edition, and do. of plants, 33rd edition, for 1880. Ellwanger & Barry, Mt. Hope Nurseries, Rochester, New York. Being Nos. 1 and 3 of this series of 7 for the present season, including 88 pages, octavo, of descriptive matter, and 15 illustrations of choice varieties. Established in 1840, therefore, 40 years of experience and constantly increasing facilities and reputation, ought to be a guarantee that their establishment is A No. 1.

ABRIDGED DESCRIPTIVE CATALOGUE, of the Bloomington Nursery. J. S. Tuttle and A. Follet, proprietors, and Baird and Tuttle, agents, Bloomington, Ill. 100 pp., 8 vo., with two additional ones of 40 and 20 pp., respectively, on fine tinted paper, and beautifully and elaborately illustrated, containing lists of plants, roses, bulbs, fruit, shade and ornamental trees, shrubberry, flowers, fruits, seeds, roots, &c., with wholesale price list. Among the fruits are choice apples, pears, cherries, grapes, gooseberries, currants, blackberries, raspberries, and many other vegetable productions with instructions in their cultivation.

OUR HOME.—Bearing on its banner the truthful and significant inscription, "The comforts and economy of home are of more deep, heart-felt and personal interest to us than the public affairs of all the nations in the world." This is a demi quarto of 32 pages on calendered paper and distinct letter press, containing the choicest home literature that has ever come under our observation. Published by Geo. H. Bladworth & Co., No. 56 Bible House, New York city, at $1.00 a year, 3 Nos. trial at 25 cts. No. 2., Vol. 1, (Feb., 1880) received. Among other excellent features it contains home amusements (including theatricals) and fashions, interspersed with poetry, wit and sentiment.

THE FLORAL MONTHLY.—A beautiful 8 paged, 3 columned quarto, devoted exclusively to flowers, plants and the garden, published the 1st of every month, at only 50 cents a year, by W. E. Morton & Co., 615 Congress Street, Portland, Maine. No. 2, Vol 1, (for February, 1880) of this young and vigorous looking candidate for public favor has reached our *sanctum*, and is about the freshest and most sprightly visitant we have had during the present year. It is printed on fine, calendered paper, in new and plain type, and superbly illustrated. Six pages are devoted to floral literature, and only two pages to advertisements. Each page has a beautifully embelished margin, and the paper is so faultlessly pure, the typography so distinct, and the selections so practical and from such excellent authorities, that we cannot see why this journal should not command a large patronage among the fair dames and daughters of our land, especially as its print is such as to make it readily readable by all, from little Dora up to great grandmother.

THE MUSICAL HERALD.—A new royal quarto musical journal of 24 pages, 8 of which are devoted to the latest and best music in the market. Its contents consist of original contributions, translations, foreign letters, able criticisms, reviews, illustrated sketches, serial stories, Sunday school, public school, singing school and church music; hymns and their authors, gems of thought, musical mention, music of the future, scherzando, and correspondence. It is especially adapted to the use of choirs, congregations, social meetings, Sunday schools, families, praise meetings and vespers. The printed music alone is worth $10.00 a year. Published by the Musical Herald Co., Music Hall, Boston, Mass., on fine, tinted, calendered paper, and with clear type, at the exceeding low price of $1.50 a year, single numbers 15 cents. No. 2., Vol. 1, (Feb., 1880) has been received, which, among other excellent things, contains an interesting illustrated memoir of John Sebastian Bach, the great German composer. Its different departments are all conducted with "rare and racey" ability.

THE CHINCH BUG.—Its history, characters and habits, and the means of destroying it, or counteracting its injuries. By Cyrus Thomas, Ph. D., an 8 vo. pamphlet of 44 pages, with sundry illustrations and a map, forming Bulletin No. 5 of the United States entomological commission, under the auspices of the Department of the Interior. We are under obligations to the commission, at whose request a copy of this valuable work has been sent us, through the politeness of Assistant Secretary Bell. The work came to hand too late to refer to any portion of it in the present number of the FARMER, except to say that in the distribution of the insect referred to, according to the map, its region extends at least three degrees beyond the northern boundary of Pennsylvania, and approaches unpleasantly near our entire western boundary, there being, partly, nothing but an artificial line separating the eastern boundary of its region from us. The Interior Department is certainly doing a good and useful work in issuing their bulletins and scattering them among the people. We are satisfied that they will be more widely distributed and do more good than when they are included in voluminous and promiscuous reports which may or may not be distributed by members of congress. If they have not the desired effect, then it will be because those in whose behalf they are issued have failed to read them and follow their instructions.

THE YOUNG SCIENTIST. A popular record of scientific experiments, investigations and progress. A monthly octavo of 12 pages, with about 12 pages of advertisements, all relating to scientific matters, and in that respect interesting and specially important. Terms—fifty cents a year, free of postage, and published at 176 Broadway, New York. P. O. box 4875. This is an exceedingly interesting and practical publication, appropriatly illustrated and of excellent typhographical execution. Just the thing for those who have neither time nor ability to "wade through" the more voluminous scientific publications, and the price is such as to bring it within the means of those in the most ordinary circumstances. Its articles are short, terse and practical, and just of such a character as ought to make the work welcome to any family and fireside that occupies a mental plane above the sensuous or merely romantic. It is a great pity that the teeming millions of our country are too much absorbed in sensational literature to entertain a proper appreciation of the rational. If there is any species of literature that is likely to make an inroad upon that impractical domain, we think it would be such a publication as the "Young Scientist."

THE SUGAR BEET.—Devoted to the cultivation and utilization of the sugar beet. A very handsomely illustrated quarterly quarto of 16 pages. No. 1 of this new journal, issued in January last, has just come to hand, and ought to have a wide circulation in our country, not so much for the pecuniary speculation it may be to its publisher, as because of its being the representative of what may become and ought to become one of the leading interests of our country—an interest, too, in which every man, woman and child is immediately concerned. Very few perhaps consider the vast amount of sugar consumed amongst the whole people of whatever condition they may be, nor of the immense amounts of money that are sent every year to pay for the sugar we consume; and it must be evident to every one who notices the great increase of the confection business, and other corelatives, and the increased patronage they command, that there must be a corresponding increase in the consumption of sugar. Now, because the sugar cane is cultivated in a few of the Southern States, and we occasionally hear of such things as "New Orleans molasses and sugar," some of our people may be unsophisticated enough to suppose that all this sugar is grown and manufactured in our country, but far, immensely far from it. We only produce comparatively a small portion of it. But we ought and can produce all we need for home consumption, and a surplusage for exportation, and whoever may live to see it, it will come to that before many years. The sugar commerce is too big a "plum" for enterprising and speculative America to let slip through her fingers. Sorghum, maize and the beet vegetation that can be grown luxuriantly in our most Northern States, will supply the saccharine fluid in abundance, and it only needs rural enterprise to develop this interest. It has been demonstrated over and over again that the manufacture of sugar from the beet is not only practicable but profitable. We shall take occasion to introduce into the columns of the FARMER interesting extracts from this journal, and regret that it came to hand too late to do so this month. Published by Henry Cary Baird & Co., 810 Walnut St., Philadelphia, at 50 cents a year. Robert Grimshaw, Ph. D., and Lewis S. Ware, M. E., editors.

THE CHRISTIAN UNION.—A weekly journal of religion, literature and politics, a 16 page 3 columned quarto, published at No. 8 Salisbury Square, Fleet street, London, England, at "six and sixpence per annum," single numbers one penny. No. 249., Vol. 6, February 13, 1880, has found its way to our table, and is welcome there. Although it does not seem to be distinctly stated who the editor is, yet it is announced that it is printed and published for Chas. Kirby, at the above named place. The journal is gotten up, mechanically, in a creditable manner, and it breathes a healthy tone in all of its articles, both original and selected; indeed we can truly say that its solid and compact reading columns are exceedingly interesting, and its morals unexceptionable. In a heading "marked" editorial, the "proximate reappearance" of Mrs. Victoria Claflin Woodhull, is announced, after a recess of two years. The editor seems to have a very exalted opinion of Mrs. Woodhull, and perhaps justly so. It is possible that Mrs. W. has been misunderstood, yea, even "maligned and persecuted." Many others have, and these at least will sympathize with her. But if she can "possess her soul in patience," these things will only facilitate her moral and spiritual regeneration, instead of being permanently injurious. We confess we know very little about her, except so far as her history has been reflected through the columns of the public press, and this may have misrepresented her. We are entirely in harmony with her view "that woman's loving influence is to be the great regenerator of the human race," if even it is regenerated; but, is the moral, spiritual, intellectual social and domestic condition of women *per se* such, at this juncture, as to qualify her for the great work of human regeneration? Have they a firm reliance upon Divine Providence, and accept the adversities which He has *permitted* as a means of individual or personal regeneration? Woman possesses an immense power, if she only knew how to wield it rationally and dispassionately, and we believe as firmly as Mrs. W. does, that woman only, as an instrument in the hands of the Almighty, through a pure hereditary transmission, can effect the regeneration of the human race, and that she is a God-appointed means. But O, let her not obey the dictates of her sensual nature, nor pander to that of man. The regenerating of the human race involves a subordination of mans sensual nature to that of his spiritual, and when we say man, we mean man, male and female, "There's the rub." We are so apt to mistake the promptings of this dual nature in man. How often do the insidious promptings of the *will* o'er sway the suggestions of the understanding? How often does the intellect yield to the affections.

MISCELLANEOUS.

Seeds and Plants.

We would call the attention of those of our readers who contemplate purchasing seeds or plants during the coming season, to the advertisement of Peter Henderson & Co., New York, now appearing in our columns. Peter Henderson, the senior member of the firm, is known far and wide as a horticultural writer and authority. His books, "Gardening for Profit," "Practical Floriculture," and "Gardening for Pleasure," are now in the hands of thousands. The green-house establishment of this firm covers three acres in green-houses and employs upwards of fifty hands. Millions of plants are shipped by mail or express annually to every State and Territory. Their seed warehouse is the most extensive in the city of New York, and every order received is certain to be filled with goods of the best quality, and as they are producers as well as dealers, "everything for the garden" will be sold at low rates. Feb-3m

Wallace's Monthly.

The March number of *Wallace's Monthly* has just reached us, and is fully up to the standard. "The Marshland Stud Farm," by "Privateer," heads the list of contents, is handsomely illustrated, and is, moreover, interesting to the general reader. This is followed by a description of Middletown, by Rysdyk's Hambletonian, with a portrait. "Breaking and Training Trotting Horses," is the first of a series of papers by H. C. Woodnut, the noted trainer, and is worthy the attention of all interested in horse stock. "Was Ethan Allen by Flying Morgan?" is a query propounded in an exceedingly readable article, no less excellent than two others, *viz*, "Butter Cows," and "The Future Trotter—How shall he be Bred?"

"Mattie Hunter and her Ancestors," and "The Sire of Rarus," are topics discussed in the editorial department, which is unusually well filled with interesting matter, "the list of 2:30 horses, under their Sires," being alone worth a year's subscription.

Publication Office, 212 Broadway; terms $3.00 per year. Mar-1m.

The Cooley Creamer.

This method of "deep-setting of milk" is coming into so general use, that at the recent dairy fair in New York, it was not shown as a "novelty," but took its place as a common and indispensable adjunct to the dairy. With a Cooley Creamer a dairyman is entirely independent of the weather, and his product is uniform at all times. It is in this, as well as in its convenience, that the Cooley process of setting milk commends itself to all who make butter.

From our foreign exchanges we infer that it has been quite extensively introduced into use in Great Britain.—*Albany Country Gentleman.* Feb-4m.

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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.

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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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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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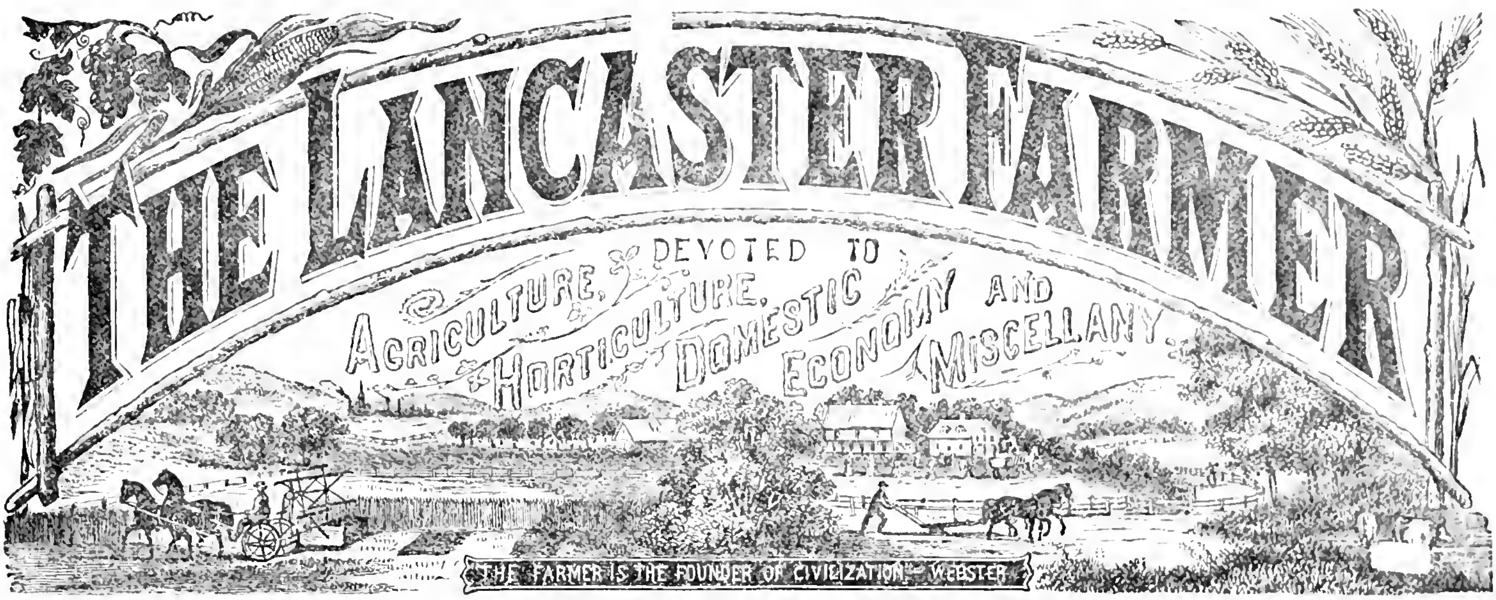

Dr. S. S. RATHVON, Editor. LANCASTER, PA., APRIL, 1880. JOHN A. HIESTAND, Publisher.

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

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*	2:10 a. m	4:05 a. m.
Way Passenger	5:00 a. m.	7:50 a. m.
Niagara Express	10:05 a. m.	11:20 a. m.
Hanover Accommodation	10:10 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy	11:05 a. m.	12:40 p. m.
No. 2 via Columbia	11:07 a. m.	12:55 p. m.
Sunday Mail	10:50 a. m.	12:40 p. m.
Fast Line*	2:10 p. m	3:25 p. m.
Frederick Accommodation	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom	5:45 p. m.	7:40 p. m.
Columbia Accommodation	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express	7:25 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.
Atlantic Express*	12:25 a. m.	3:00 a. m.
Philadelphia Express†	4:10 a. m.	7:00 a. m.
Fast Line*	5:20 a. m.	7.40 a. m.
Harrisburg Express	7:35 a. m.	10:00 a. m.
Columbia Accommodation	9.10 p. m.	12:0 p. m.
Pacific Express*	1:25 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*	5:20 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 9:55 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 Lendisville.

*The only trains which run daily.

†Runs daily, except Monday.

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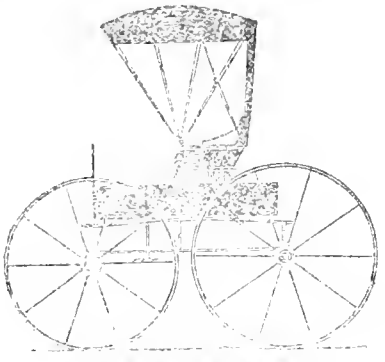

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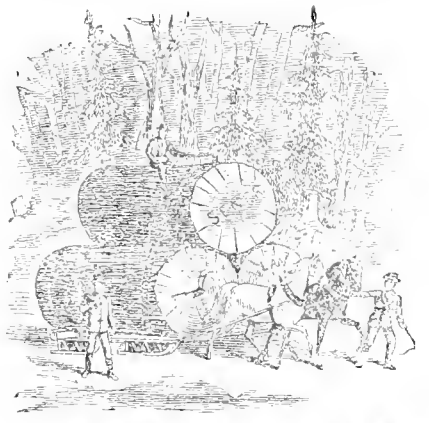

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Nov-1y

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor. LANCASTER, PA., APRIL, 1880. Vol. XII. No. 4.

DRIED FRUIT.

The great bulk of the dried fruit consumed in our country to-day is no better—if it even is as good—as that which was consumed one hundred years ago. Somehow people had come to think that fruit when dried ought to be the color of mahogany, and the liquid in which it is boiled should be the color of uncreamed coffee. Fruit was usually set out on screens and dried by the slow process of the sun, or put into the oven after the bread was taken out, if the sun failed to shine; in the meantime, it was visited by hosts of common flies, wasps, moths, hornets, spiders and other "vermin" that mutilated it, and peppered it all over with their excretal voidings, so that consumers were compelled to wash it thoroughly before boiling it, or eat more than they bargained for. At other times it was strung on strings and hung up to dry by the sun or atmosphere, under a like exposure, or put in tin or iron pans and dried in the oven, which was often made hot enough to dry it as crisp as old shoe leather, or burn it as black as charcoal. Much of that in the market at the present day is of that character, and especially the kind made of sweet apples, and often when brought to table it is of an inky color, and anything but inviting to the appetite. We have often wondered why this should be so, and whether it could not be dried in some way by which it would retain more of its natural color, taste and flavor.

Another objection to much of the dried fruit was that it was dried with the skins on, and this was especially the case with sweet apples and peaches, and, also, in some cases, with pears. This is to some extent still the case. Possibly there may be some people who prefer unpared dried fruit, and if this is the case the demand for it should certainly be supplied. Another reason, perhaps, is that pared fruit necessarily commands a higher price, and people may prefer the unpared on that account. But with the present improved paring and coring machines the labor of preparing fruit to dry is very much diminished; besides, it takes longer to thoroughly dry fruit that is unpared than it does that which is pared. During the past ten or twelve years various machines have been invented for drying fruit by artificial heat in such a manner as to retain nearly its original color and flavor. Of course it will necessarily become a little darker in color than the fruit was before it was dried, but there is no need that it should be "done up brown" to find a free and profitable market. We often wondered why our farmers did not more generally avail themselves of this improved apparatus in drying their fruit, because they can produce a more edible and better paying article by paring and coring their fruit before drying it, and by patronizing a good machine they certainly would soon be able to pay for it out of the advanced price their fruit would bring in the market.

When fruit is dried in such a manner as to preserve its color, taste and flavor as nearly as possible, there would be little necessity in preserving or canning it, and thus all the expense of cans and sugar would be saved, besides all the risks of spoiling by fermentation and exploding of cans or jars. Among all the different machines that have come under our observation for this purpose, we think there is none—in its structure or principles—that can compare with "*Ryder's American Fruit Drier or Pneumatic Evaporator*," embracing new principles of fruit evaporation, and manufactured by the "*American Fruit Drier Manufacturing Company*," Chambersburg, Pa. It may be said with confidence that no family that has been in the habit of canning and preserving fruits and vegetables for their own use can afford to be without this *household necessity*, for the following reasons:

"1. It will save you its cost the first season in money paid for sugar, fruit-jars and cans. Put your fruit in paper bags or boxes as you take it out of the drier, and it is safe.

"2. It will save you its cost every season in time labor and vexation. At any time your folks can kindle a fire, put in a few trays of fruit and it will be out of the reach of dust or flies, and all this without overheating themselves, or being vexed with broken jars or leaking cans.

"3. It will save you its cost in the quality and healthiness of its productions, avoid all corrosions of metal cans, and exempt you from lead poisonings. Fruits prepared on this drier are superior in flavor, color, taste and general appearance, not to be compared with ordinary dried fruits, and in the nutritive value far superior to canned fruits.

"4. It will save its cost in utilizing windfalls, specked and knarly fruits that could not otherwise be made use of. Inferior fruits can be used and turned to account by drying, but the best fruits will pay better to dry than to can and preserve by the old methods.

"5. It will dry and preserve equally well all kinds of fruits and vegetables, as strawberries, cherries, raspberries, blackberries, currants, gooseberries, grapes, apples, peaches, pears, peas, plums, quinces, green corn, beans, sweet and common potatoes, pumpkins, tomatoes, egg-plant, &c., all of which retain their flavor with increased sweetness, and when properly treated with water are easily restored to their nearest possible natural size and fresh appearance."

The true philosophy in drying cut and pared fruits is to subject them to *a current of dry heated air*, in order to dry the cut surface quickly, which prevents discoloration and makes an artificial skin, which practically closes the cellular tissues that contain the acid and starch, which yield glucose or fruit-sugar. Let it also be remembered that fruit dried by this drier needs no preparatory washing—indeed, washing always carries off a considerable amount of the flavor and saccharine matter, and produces a corresponding insipidity.

There is another matter connected with fruit-drying for market which seems to have elicited but little attention generally, but which, we believe, would pay in the end; and that is to make different grades of quality, and these grades should be based upon equal degrees of ripeness and equal degrees of texture. For instance, ripe fruit and unripe should not be included in the same lot; neither should naturally tough and tender fruit, because unripe and tough fruit always requires longer boiling than ripe and tender fruit; hence, in their culinary preparation the former may be partially raw, whilst the latter may be reduced to a pulp when they are boiled together. Time was when butchers paid little attention to grading their meats, except, perhaps, in the larger cities; but now the thing is more systematically arranged everywhere, and it *pays*. The tobacco growers see the advantage of systematic grading in preparing their crops for market, but before they learned it many a first-class lot of tobacco was sacrificed because of the inferior grades being mixed up with it. It pays *them*, and pays them well, too, to grade their crops into different qualities. It would pay equally well in dried fruit. It may be said this would place the good fruit in the possession of the rich, and the inferior would be left for the poor. Well, is it not the same in everything? A rich man may wear $10.00 cloth, and live in a villa that cost $10,000, whilst the poor man must be content with 75 cent satinet, and occupy a cottage worth $500, and feels glad when he has even that unencumbered.

DEATH OF JACOB STAUFFER.

By reference to the proceedings of the Linnæan Society, at another place in this number of the FARMER, our readers will be informed of the death of our old contributor, Jacob Stauffer, in the 72nd year of his age. From 1869 to 1880, Mr. Stauffer has been an almost constant contributor to the columns of the FARMER, and his death is a source of regret in this respect that has not been mentioned in any of the obituaries and testimonials that have been published in his behalf. His papers (many of which were illustrated by his own hands) mainly related to botany, which he usually treated in a pleasing and practical manner, giving historical sketches of plants, their discovery and significance, their good or bad qualities, and the various mechanical, culinary and medicinal uses to which they may be applied. When it is remembered that during all the eleven years in which he so disinterestedly labored in the cause of agricultural literature he never received—and never demanded or expected—one penny of compensation, it will be readily perceived what acrifices he must have made.

But men's works "follow them," whether they be good or evil; and the "Well done, good and faithful servant, thou hast been faithful over a few things, I will make thee ruler over many things," will be a greater ultimate compensation to him than anything that the world could possibly bestow. Not only as farmers, but also as inventors, the people of the county of Lancaster will discover that they have sustained a serious loss. Mr. Stauffer in his own person combined the rare functions of both attorney and draughtsman, and hence, as a patent agent, he was of great advantage to the inventors of the county, and it will be many days before the *vacuum* created by his departure can be adequately supplied. Few men within the borders of our county have led lives of such disinterested usefulness, and few more cheerfully have shed their moral and intellectual light than he. But his "warfare" is now over; his arduous labors on this earth have ended, and none who knew him will refuse to join in the invocation accorded to the faithful—"*rest in peace*."

"BLEEDING KANSAS."

It is not so many years ago since these terms were used by mere politicians as a lamentation, or ironically as a reproach. Her political and social warfares are now happily over, and Kansas is "bleeding" such substantial treasures as cannot fail to redeem her citizens from dependence and want, and assure the reign of prosperity within her borders. Hardly more than a quarter of a century old, she already far outstrips, in her agricultural productions, many of her sister states who are centenarians.

The quarterly report of her State Board of Agriculture, (a notice of which appears in our literary columns) is an octavo volume of 170 pages, in which her resources are systematically and methodically brought to view, up to December 31, 1879, and as a tabulated and statistical document, we question whether another of equal ability has ever appeared in the Union, either in detail or as a whole. It was the last labor of the lamented Alfred Gray, of whose reports we have formerly had occasion to speak in terms of praise, and any

man after such a labor might truthfully be accorded the scriptural "*well done.*" These statistics are very minute, giving the acreage, product and money value of each particular county, but they would be too voluminous to transfer to our columns. But, to exhibit to our readers the *status* of Kansas fertility as a whole, we would call their attention to the following general summary for 1879:

Winter wheat	1,520,670 ac's	17,560,259 bu		$16,087,103.69
Spring "	412,139 "	2,990,677 "		2,331,307.60
Rye	43,675 "	650,409 "		264,165.45
Corn	2,995,070 "	108,704,927 "		26,562,674.46
Barley	45,851 "	720,602 "		360,046.00
Oats	575,982 "	13,326,637 "		3,397,416.33
Buckwheat	2,817 "	41,806 "		37,175.74
Irish Potatoes	68,501 "	3,324,129 "		2,177,564.55
Sweet "	2,728 "	197,407 "		197,407.57
Castor Beans	68,179 "	766,143 "		766,143.37
Sorghum	23,684 "	2,721,458 gal.		1,224,656.57
Flax	69,394 "	622,256 lbs		622,256.02
Cotton	197 "	33,588 "		3,023.06
Hemp	666 "	557,578 "		33,472.72
Tobacco	752 "	556,753 "		55,675.38
Broom Corn	14,273 "	895,147 "		283,339.15
Millet&Hungarian	174,890 "	494,962 tons		2,642,275.75
Meadow Timothy	57,181 "	86,884 "		483,812.15
Meadow Clover	14,769 "	25,822 "		152,503.92
Meadow Prairie	672,994 "	913,653 "		3,017,412.43

Besides 14,212 acres timothy pasture, 7,007 acres clover pasture, 36,166 blue grass pasture, and 955,826 acres prairie pasture, amounting in the aggregate to 7,760,926 acres, valued at $60,129,780, omitting fractions.

This only relates to the manipulations of the soil and its productions, and does not include stock, milk, butter, cheese, garden and orchard products, of which we shall have something to say on a future occasion. Surely there is a significance attached to these results, when compared with the older states, and especially with the "Sunny South." When we see the comparatively small acreage devoted to tobacco it must surely be encouraging to those who fear our country is becoming one vast "tobacco patch." In Kansas, at least, the preponderence leans towards *wheat* and *corn*.

LONG-LEGGED CENTIPEDE.

CERMATIA FORCEPS.—Noticing a paragraph on page 711 (November number) of the *American Naturalist*, in relation to the "northern boundary" of this seemingly unique myriopod, recalls some observations of my own on its local habitat, and especially the "sharpness" of its own boundary. For instance, from 1812 to 1848 my residence was at Marietta, on the banks of the Susquehanna river, being the southwestern margin of Lancaster county, Pa. Although the last eight years of my residence in that locality were among the most active and enthusiastic of my life, as an entomological explorer and collector, yet, during the entire period of thirty-six years I never saw a single specimen of *Cermatia forceps* in or about that locality, and from the fact that I have been unable to make any one from that place understand what kind of animal I mean, when I inquired about it, I infer that it is not there now. But when I located here in 1848, I found them in tolerable abundance in the centre of the city, and in remote localities within its boundaries, and I have seen them at various times every year from that period down to the present time. At first I only found them in cellars, especially of old buildings, and I was almost ready to conclude that they were mere spectres they vanished so quickly from my view, but at length a friendly spider's web accomplished what I had failed in by entangling several specimens. Now, however, I find them on first, second and third stories, as well as cellars, in stables and outhouses, and often in my own *sanctum* and sleeping room—indeed, they frequently come out of their hiding-places at night and run across the desk on which I am writing, and in one instance across the very paper. Marietta is about twelve miles west of Lancaster, but whether this myriopod has been observed at any intermediate point, I cannot say. And here allow me to record a deadly conflict between a full-grown *Cermatia* and a cockroach (*Blatta orientalis*) as related to me by an eye-witness of this city, of sufficient intelligence and veracity, in my view, to entitle it to credit. As soon as the animals saw each other they halted and began to reconnoitre, the roach raising up on its legs as high as it possibly could, keeping its head towards its antagonist, which made a circle around it. At length it pounced upon the roach with the quickness of lightning, and when the witness approached it darted off as quickly, leaving its victim dead upon the field.

I had a similar experience as to locality, in regard to *Reduvius novenarius*, a HEMIPTEROUS insect. *Here* it is common, and is becoming more numerous every year, but *there* I never saw it, and do not *know* that it is there now.

AGRICULTURAL DEPARTMENT.

The subject of this department, as a prospective creation of Congress, is now looming up, and the wonder is that it has not been thought of and carried into effect at an earlier period of our history as a nation—indeed, at the very foundation of the government. It is proposed to raise this department to an equality with the State Department, the War, Treasury, Navy, Interior, and other departments, with a secretary who shall be a member of the Cabinet, and in all respects be on an equality with the other presidential advisers. It seems to us that this is eminently proper, and should have been done long ago for the simple reason that agriculture is, or ought to be, the *first interest* of any civilized nation—an interest of paramount value, and upon which are based all other interests of the nation. It involves the great question of physical subsistence, and furnishes the sinews for the practical operation of the whole machinery of government and the successful existence of society. Without agriculture and its products all other departments of the government, as well as commerce, manufactures, arts and sciences, and all other interests pertaining to civilization, must become entirely extinguished for the want of a material basis. What would an army or navy be without the subsistence which agriculture furnishes? When a being is born into this world, whether it be the lowest or the highest creation, or any intermediate creation, the first impulse that it manifests tends towards subsistence, and if this is not furnished at the proper time, and in proper quantity and quality, that being languishes or perishes. So long as we are in the body we are compelled to provide for the comforts of the body, and no man or animal, no individual, state or nation, can be either comfortable or contented so long as they are hungry or inadequately clothed, and the material to assure these comforts is drawn from the soil as a tangible result of agriculture. Where the necessity for agricultural labor does not exist, the state of civilization is low and inferior. In locating in and "settling up" a new country the very first and all-absorbing question is its fitness for agriculture, and if this resource is wanting it is not regarded as a place that is fit for human beings to live in, simply because it does not promise the aliment necessary to a continuance of human life. If this, and much more that might be said in behalf of agricultue be so, it seems reasonable to assume that it ought to elicit the fostering support of government in proportion to the essentiality of its function. There may be some objections to making agriculture a co-ordinate department of the government, but the most objectionable to us would be its political subordination to the periodical changes in the administration of the government, whereby it might become a "plum" for politicians to intrigue and fight about, but if its creators *would* they *could* provide against such a contingency.

ANOTHER PEACH TREE ENEMY.

For the past two or three years Mr. Jno. M. Johnston, of Lancaster, has been making frequent complaints about an old but favorite peach tree, alleging that it was gradually becoming weaker and weaker, and that he had discovered about the base of it quantities of issuing gum, but never had found any insects. From his report we concluded that it was infested by the common "Peach Tree Borer" (*Ægeria exitiosa*), and that when he had made his examinations the insects had already escaped in their matured form. Last year the tree was so much enervated that it scarcely had power to leaf or blossom, and, of course, produced no fruit. This spring he removed it, and brought us a portion of the lower end of the trunk. The whole interior of the trunk to about the height of two feet was in a state of decay, and this decay extended down into the larger roots at least one foot under the ground. A thin shell of living wood here and there around the exterior was all that was left as an avenue for the ascending sap. This dead wood was perfectly honey-combed with galleries, containing numerous larvæ, not of the *Ægeria*, but of a species of LANGICORNIA, (probably a *clytus* or a *saperda*, or some of their cogeners). From the fact that a number of young peach trees had also been in a feeble condition, and which on removal were found to be similarly infested—some of them perfectly girdled at the base—and the roots completely barked for six inches below the surface—even to the destruction of the woody tissue—we incline to the opinion that these larvæ are Saperdans, based mainly upon the fact that we have frequently found young apple trees in the same condition, caused by Saperdans. One of these young trees (about an inch in diameter) contained a larva in the heart of it, working upward. Mr. Johnston says that some years ago an old building stood very near this peach tree, and that on its removal the lower timbers were perforated similar to the trunk of the tree, and were "full of worms," which no care was taken to destroy, and he supposes that they found their way from thence into the tree as the only place accessible to them, for the surroundings are chiefly brick and mortar, being in the very centre of the city.

These *larvæ* are perfectly white in most cases, a few having a tint of pink. They are of various sizes, the largest being 1¼ inches long, and ⅜ in circumference around the thoracia segments, which are larger than those that follow, though not nearly so large as they usually are in the Buprestans. They are altogether footless; the head small and of a dark brown color, and the mandibles short and sharp.

Even if the peach escapes the cold weather, it has yet a fearful gauntlet to run. The peach-aphis, peach-coccus, peach-*Tomicus*, peach-borer, peach-codling, peach-curculio and several other pests, including this last one, all seem to be lying around—like the aspirants to the throne of France—waiting for an opportunity to possess it.

We are in the effort to breed these *larvæ*, and if we succeed we shall in due time, we hope, be able to determine the species. In the meantime we would admonish our readers to destroy all worms that they find in or on their trees, and thus save themselves a world of subsequent trouble. Especially when they split up old wood or timbers and find worms in them, they should see that they are killed or fed to fowls. Fowls are very fond of them, for they are a rich and savory morsel. Mr. J. gave his chickens quite a feast when he removed and split up the old peach stump. We feel confident that this matter is not attended to as it *should* be and *could* be, if only the people determine that it *would* be.

GARBERIA.

An Honor Conferred Upon a Lancaster County Botanist.

At the meeting of the Botanical Section of the *Academy of Natural Sciences*, of Philadelphia, held on the 10th of November, 1879, Mr. Redfield presented the following from Dr. Asa Gray, America's distinguished botanist: "I wish to secure an opportunity which occurs to dedicate a genus of plants peculiar to Florida, to Dr. A. P. Garber, of Pennsylvania, who

has done such good botanical service in his recent faithful exploration of the southern portion of Florida. Among the rest, he has rediscovered the interesting plant which will now commemorate his name and services. This plant is the *Liatris fruticosa* of Nuttall, before collected only by Mr. Ware in scanty specimens." Nuttall formed for this plant a sub-genus, which Dr. Gray subsequently raised to a generic rank, in view of certain characters which he had formerly described. Dr. Gray then adds: "A subgeneric name has no rights as against a published generic name. So a new name must be provided for the Florida plant. I had thought at the first of dedicating it to Dr. Garber, but I deferred to the subgeneric name given by Nuttall; and I now do with alacrity what I ought to have done in the first place. The name and synonymy will stand thus:—

GARBERIA FRUTICOSA.
Liatris fruticosa, Nuttall.
Leptoclinium fruticosa, Gray.
South Florida.—*Ware, Garber.*"

Dr. A. P. Garber is a native of Lancaster county, and a son of the venerable Jacob B. Garber, of Mountville, one of the horticultural veterans of our county. Dr. Garber was a graduate of the State Normal at Millersville, the faculty of which doubtless still remember him. He also graduated as a physician, and for some time held a position as botanist in Lafayette College, at Easton, Pa. He was also an active member of the Lancaster Linnæan Society, and is still a corresponding member, and we recall him as one of the members of its early field excursions. He has been for some years located at Manitee, Florida, and occasionally forwards to the society rare specimens in natural history. This dedication conferred by such a distinguished authority as Dr. Gray, and recognized by such a distinguished institution as the Academy of Natural Sciences, is an honor worthy of those who so heartily accord it a credit to him whom we know will "blushingly bear it"—an honor of which any man might afford to feel proud. We recall Dr. Garber as a quiet patient, persevering and thorough student in the scientific specialty to which he has been for many years devoted, and which furnishes him so many golden opportunities in the "land of flowers." As an evidence that he is not merely an idle spectator there, the Conservator of the Botanic Section of the Academy of Natural Sciences, in his report for 1879, states that during the year Dr. Garber has donated to the *Herbarium* of that institution 623 species of Florida plants, embracing many rare and new species, the results of his untiring industry.

It is with a peculiar pleasure that we are enabled to make this honorable record of one of the worthy sons of Lancaster county, and regret that the examples seem to be so "few and far between." Most young men of leisure and pecuniary means court luxurious ease, rather than the school of science, even in cases where opportunities are amply afforded. And yet there is a compensation in it, of which nothing can deprive them.

A NEW MYRIAPOD.

The following we clip from the *Intelligencer*, although we have seen something similar to it in the *American Naturalist*:

Mr. Ryder, a member of the Academy of Natural Sciences, Philadelphia, has discovered in Fairmount Park a little myriapod-like scolopendrella, which is regarded as a creature of great importance scientifically. The extraordinary—one might say bizarre—combination of characters presented by the animal, makes it what has been known since Agassiz's time as a synthetic type—that is, a form which combines characteristics of several orders or widely separated groups. It, in fact, represents the ideal form, from which it may be supposed that the great six-legged group of insects has been derived, as the number of joints in its body corresponds with that of the larval stages of the greater part of this group. It seems, in truth, to be an insect with legs to every joint instead of to only three, as in the latter. This view of its relationship more than ever justifies its recognition as the type of an order under the name sympyla, signifying that its organization represents in a combined form that of several lines of development of descent. When the embryology or development from the egg of this little creature is studied, the probabilities are that a story of the highest significance will be revealed, perhaps one of the most important ever recorded in the annals of entomological science.

HAIR WORMS.

A small and very attenuated white worm is sometimes found in the seed cavities of the apple—hardly any thicker than No. 60 spool cotton—and also in other fruits and vegetables. We have specimens in the collection of the Linnæan Society, one of which was taken out of a cavity near the middle of a head of cabbage, and another taken out of an apple—the former being by far the thickest and longest. Others have been received from persons who had no distinct recollection of the circumstances under which they were found, or had gotten them from other persons. These animals belong to a family of ABRANCHIOUS ANNELIDES, (or "worms" without bristles) of which the common "Hair Worm" is the typical genus. The GORDIACEIDE have been long known to be parasitic on other animals, in the early stages of their development, but the *details* of their transformations or transitions are little better known now than they were a hundred years ago. These animals are seldom found stretched out at length, except when found swimming in ponds or marshes in very warm weather. They are usually found tangled or knotted, and from this fact the "Gordian Knot" has originated. We have a female specimen of *Gordius varius* in the Linnæan Museum, that has a fine filament adhering to her body, to which are attached a number of eggs resembling a tiny string of minute beads. On one occasion we found numerous specimens of *Filaria* (which belongs to the same family) infesting the bodies of grasshoppers (*Caloptinus femer-rubrum*), some of them protruding an inch or more, and in every instance the "hoppers" were either dead or very feeble. There are still some people who firmly believe that these Gordians are animated horse-hairs. We tried to animate a horse-hair many years ago, but we utterly failed.

Dr. Greene, of this city, sent one of these white hair-worms to Prof. Comstock, of the Entomological Department at Washington, for determination, and he answers under date of March 10, 1880, that it is *Mermis accuminata*, and that it is parasitic on the larva of the "codling moth" (*Carpocapsa pomonella*) which is good news to apple growers, as far as it goes, that that pernicious pest has at least one parasite. But it does not go very far, for the codlings are too numerous and the parasites too few, ever to effect an equilibrium. It may, however, serve to quiet alarm when the *Mermis* is found in apples. Could the specimens found in cabbage have been parasitic on the larvæ of *Pieris rapæ*? That would also be something worth knowing.

A MUNIFICENT GIFT.

William L. Shaffer, Esq., for many years the distinguished president of the "Pennsylvania Horticultural Society," has just consummated an act that will forever place his name high on the pillar of fame, and render it dear as an example of disinterested liberality to the friends of Horticulture all over our broad land. The society over whose interest he has so long and so efficiently presided, and whose welfare was so dear to him, is the oldest horticultural society in our whole country, having been organized about sixty years ago—if not longer—and, during all that long period, it has been one of the most *live* societies in the "Keystone State," or elsewhere. The fruit and floral exhibitions of this ancient association have for many years been prominent events in the progress of American horticulture. Some years ago during the successful tide of our commercial, manufacturing and general business affairs of the country, it purchased ground and built a magnificent hall on the west side of Broad street, at a cost of about $75,000, an ornament to the city of Philadelphia, and a credit to the society under whose auspices it was erected. But after that a "long and anxious" financial reverse occurred, embracing our entire country, and "wiping out" many of the noblest enterprises of the land, and so enervating others that they could only with the greatest difficulty brave the impending storm; and hence, this old society had an embarrassing outlook, financially, although, in the objects of its organization, it kept on, in the "even tenor of its way." At length President Shaffer, under the influence of an ennobling and benevolent impulse, stepped forward, purchased the entire hall, and kindly donated it to the society. An engrossed copy of the society's grateful thanks, signed by the faculty, was executed and presented to the president on Friday evening, April 9th, in the hall, on which occasion the formalities of this "double blessing" were duly observed, and appropriately solemnized. Long live the "*Pennsylvania Horticultural Society.*"

A GOOD EGG.

Mr. Henry Wyman of this city, exhibited to us a very *eggs*-traordinary hen's egg; and, although we may not be able to separate it from the class of "monstrosities," yet, for special reasons, it may be none the less a *good egg*. He found it "lying around loose" in the chicken yard, which seems to imply that whatever value he or other people may attach to it, the hen that laid it thought it "no great shakes"—not worth cackling over. There were in fact two eggs, united by a narrow tubular process, the whole being without a shell, but covered with a white translucent integument—something like an old-fashioned double money-purse, with the middle contracted and the ends well filled. That which is most singular about it is, that the one lobe contains the albumen and the other the yolk; and to carry the singularity still further the integuments of the two lobes have accommodated themselves in form to the character of their contents—that is, the lobe that contains the yolk is spherical, and the one that contains the albumen is oblong, approximating to the natural form of an egg. This may illustrate the influence which the inner contents of the egg exercises over the *form* of the shell. Now, we have above designated this a "good egg," and doubtless every progressive housewife will occur in that opinion. In many culinary or baking preparations housewives desire the yolk and the albumen separated, and sometimes in attempting to do this, they get the two sadly "mixed up;" therefore, if they could have them naturally separated, so that they could empty them out (like a purse) into separate vessels, it would facilitate labor and prevent vexation. If Mr. Wyman can produce "strains" of that kind of eggs, no doubt he would be considered a benefactor.

PENNSYLVANIA FRUIT GROWERS' SOCIETY.

At a meeting of the Executive Committee of the Pennsylvania Fruit Growers' Society, held in Lancaster, Pa., March, 1st, 1880, the following standing committees were appointed for the year ending third Wednesday of January, 1881. It is hoped that chairmen will open correspondence at once with members of committees, and submit their reports at the annual meeting without, further notice.

The next annual meeting will be held in Gettysburg, Pa., commencing third Wednesday in January, 1881.

GEO. D. STITZEL, Pres., Reading.
GEO. B. THOMAS, Treas., West Chester.
E. B. ENGLE, Sec., Marietta,
Executive Committee.

Committees for 1881.

General Fruit Committee.—E. Satterthwait, Montgomery county, chairman; A. R. Sprout, Lycoming county; Joseph Lewis, Jr., Delaware county; Dr. James Calder, Centre county; J. O. Martin, Franklin county; W. M. Pannebaker, Mifflin county; J. V. Garretson, Adams county; W. L. Shaeffer, Philadelphia; J. S. Murdoch, Sr., Allegheny county; H. S. Rupp, Cumberland county; S. Stevenson, Lackawanna county; Bassler Boyer, Lebanon county; T. A. Woods, Dauphin county; J. W. Pyle, Chester county; A. S. Shimer, Northampton county; Casper Hiller, Lancaster county; Peter Lint, York county; A. S. Sheller, Union county; C. T. Fox, Berks county; H. Leh, Lehigh county; F. F. Merceron, Columbia county.

Committee on Nomenclature.—Josiah Hoopes, Chester county, chairman; L. S. Reist, Lancaster county; J. Hibberd Bartram, Chester county; S. W. Noble, Chester county; Ezra High, Berks county.

Committee on Floriculture and Arboriculture.—Charles H. Miller, Philadelphia, chairman; P. C. Hiller, Lancaster county; John C. Hepler, Berks county; Geo. Achelis, Chester county; W. P. Brinton, Lancaster county.

Committee on Orcharding.—Thomas M. Harvey, Chester county, chairman; Dr. J. H. Funk, Berks county; J. G. Engle, Lancaster county; H. F. Clark, Columbia county; Jacob Heyser, Franklin county.

Committee on Entomology.—S. S. Rathvon, Lancaster county, chairman; J. S. Stauffer, Lancaster county; Herman Strecker, Berks county.

Committee on Arrangement and Reception.—E. G. Fahnestock, Adams county, chairman; Raphael Sherfy, Adams county; H. J. Stahle, Adams county; Isaac Herretter, Adams county; E. B. Engle, Lancaster county.

ESSAYS.

CHEMISTRY OF SOILS.*

I fully and conscientiously believe that the time is not far distant when all farmers will have full confidence in chemistry, and will be able by making an analysis of their soils to readily determine the necessary additions to be made to them to raise any crops suited to their longitudinal locality. In a few years more no farmer will be so ignorant of this science as to need to test one after another of a long list of manures in order to determine the proper requisite to his land. To illustrate it, it is now well known that one vegetable product requires largely a phosphate, another a sulphate, another an ammoniate. Hence when the farmer is about raising any product requiring either of the above chemicals, he will examine his soils and add any deficiencies. To again illustrate: Putty is composed of linseed oil and whiting, and no other two simples can be united to make the compounds of putty. Charcoal, sulphur and saltpetre separately are non-explosives, but united in proper proportions, gunpowder is the compound, which is a terrible explosive.

Nitric acid and glycerine separately are harmless substances; mixed together, nitroglycerine is the compound, and it is a fearfully powerful explosive; chloric acid and quicksilver mixed in equal parts, in a fire in a crucible, will make calomel; if two ounces of chloric acid is mixed with one ounce of quicksilver in the same way, an entirely new and poisonous compound is made, viz., corrosive sublimate. If you mix nitrate of soda and hyposulphate of soda together, both of which are intensely bitter, they will produce a very sweet substance. If you rub together equal quantities of glauber salts and nitrate of ammonia, the two solids will become liquids. The malic acid in the grape in July becomes grape sugar in August. Now, I have introduced these chemical facts to prove that the laws of chemistry never change. The laws of formation of vegetable matter also never changes. Corn to-day requires the same constituents in the soil for its development that it did two hundred years ago, and if you do not provide the suitable requirements you cannot raise good corn. The best baker in the world is the scientific one, that is the one who makes his dough up after certain well-known laws, and the best baker in the world may try to make good bread from stale poor flour, and he will always try in vain. The word science is very greatly disliked by some farmers, but they are disliking their best friend; they are ignorant of its true meaning, and all through their lives every good result they obtain is only a scientific fact. Science is a bundle of experiences tied together. The farmer who writes down in an almanac or in a book the good results of certain experiments he has made, is collecting scientific items. The most successful raiser of crops has in some way become the most scientific. He has separated the wheat from the chaff of life; and all the successful facts he picks up in a long life may be written in a small book that can be read and learned by another farmer in a few weeks.

Let me give another illustration premised by a fact: One of the immutable laws of the inscrutable controller of this world is that in the vegetable and animal kingdoms there shall be no rest; growth and decay, formation and disintegration are ever going on, now to-morrow and forever, and the most intelligent farmer is the one who shall find out the simplest and cheapest manner of replenishing or restoring that portion of the soil abstracted by the vegetable growth on his farm: now for the information. Supposing a certain portion of your land is very clayey and another part very sandy, by a union of the two you can produce, with other additions, an elegant loam. The seeds that have died in the clay would have sprouted and born good results in the mixture. This union of the two soils is a scientific fact that somebody had to first learn from experience. There is not a farmer's tool to-day in America but what is an improvement on the first tools made; this is the result of science. Compare the wooden plough of the Africans with the best varieties of to day; the scythe of our Pilgrim fathers with the mowing machines of to-day, the stage coach with the railroad; the letter carrier of George Washington with the Atlantic telegraph cable of to-day, and in a few years, if alive, I shall write an appendix to this article, and say the farmer of 1880 with the farmer of 1900. Then testing fifty fertilizers to find the one required on his farm, while to-day (year 1900) he selects from among the list the required ones after analyzing his soils. The changes effected are the result of scientific experiments, and this knowledge is carried all over our land by the thousand and one papers and magazines. Papers like THE LANCASTER FARMER and *Judd's Agriculturalist* are doing much to perfect farming. In 1704 only one newspaper was published in the United States; now almost every hamlet and town of America is supplied with its newspaper. One of the great misfortunes of to-day is that these scientific facts are so widely spread about in so many books, organs, magazines and papers; they should be collected together in a series of agricultural books, easily read and understood, and printed at such costs that all farmers could purchase them.

Another illustration: In land full of lime, the addition of more lime would destroy the formative principle; an excess of any chemical in the soil will act prejudicial to vegetable growths, the results will be sometimes excessive, worthless or fungus excrescences. Pure urine thrown on plants will kill them; mixed in water or loam and added, in many cases, it will rapidly increase the formation of good sap. Ben Franklin, in his almanac called Poor Richard, says, "Constantly taking out of the meal bag, and never putting in, will soon come to the bottom." So growing corn or wheat on the best soils will, after a time, take out the necessary chemicals, and the crops will cease growing.

*Read before the Lancaster County Agricultural and Horticultural Society by Dr. C. A. Greene.

CONTRIBUTIONS.

DUNGHEAP LIQUOR.

Every now and then new ideas are advanced that completely upset our own preconceived ideas of the subject, or make us modify them in a greater or less degree. A case in point is to be found in the March number of the FARMER where part of an article under the heading of "Rotten Manure" is copied from the *Germantown Telegraph.*

The gist of the article is this:

At a meeting of farmers and fruit growers one of them advanced the idea that manure was not injured by having the black water run off.

I doubt if many will be found to agree with the speaker, for it has been a standing injunction that manure should be covered so as to prevent leaching, or if not covered that the yard should be so formed as to hold this same black water.

According to some tables at hand the composition of "dungheap liquor" is given as 1¼ pounds nitrogen, 5 pounds potash and a few ounces of phosphoric acid in every 1000 pounds of the liquor. This would be about ¾ pound nitrogen and 2½ pounds potash for each large barrel, the size of such as coal oil and molasses is now received in. As only the more soluble parts of the manure would be washed out, and these more soluble parts are more valuable because of their quicker action, it follows that a barrel of the liquor would be worth something like 40 cents. It is scarcely to be supposed that the speaker would claim that a heap of manure would be just as valuable after a number of barrels of this liquor had leached away. The leaching of course implies time, and in such time the manure becomes more thoroughly rotted and of smaller compass, and as such a *load* of it would be worth more than before leaching, but there would not be so many loads as before. If manure was to be purchased by the load there would be no objection to some leaching, as then it would be more thoroughly rotted and be less bulky, if kept in open heaps, as is most usual, but if purchased by lump, more value would be received without leaching, but the extra amount of handling required would perhaps counterbalance the additional value.

Using Absorbents.

It has been the custom to recommend the employment of dry earth or other absorbent, to be used in preserving the manure of poultry for the purpose of preventing the escape of ammonia. Dry earth has also been used more or less in stables and in earth closets. Yet a few years ago Col. Waring had an article in the *American Agriculturist*, in which it was stated that dry earth that had been re-used a number of times did not show any appreciable gain in the amount of ammonia contained, and that in the opinion of the writer the admission of air through the medium of the dry earth decomposed the ammonia that may have been added from time to time.

It is important to know the real truth of the case, and the editor of the *Agriculturist* informs us that observations were being made in order to determine as to the correctness of Col. Waring's deductions; the editor also thought that chamber slops that would be poured into a barrel containing earth would not be likely to lose ammonia, because the earth would be kept moist by the slops. Nothing has yet been published as to the conclusions arrived at, and it is probably one of those problems that take time to solve in a satisfactory manner.

Dr. Sturtevant, of the *Scientific Farmer*, is of the opinion that dry earth is useful, and that Col. Waring did not sufficiently take

into consideration the great bulk of dry earth in comparison with that of the faces, and that "so far as our facts apply, we must believe that whatever fertility night-soil adds to the earth of the earth closet is to be found in the earth closet manure, if not dried by too high artificial heat."

The addition of the earth to manure has at least the merit of preventing overheating from excessive fermentation, and there is very little doubt but as much ammonia is prevented from escaping by keeping the manure moderately cool as may be lost from decomposition through the earth, and the latter fact has yet to be proven to be true.

Experiments with Fertilizers.

Since writing the article for the March number of THE FARMER, the *American Agriculturist* has come to hand, and contains tables of the results of experiments with fertilizers. It may be well to state that two years ago the journal mentioned above was the means of getting sets of fertilizers put up for purely experimental purposes, and the tables referred to are the results of such experiments as were reported.

If the increase in production, at regular market prices, does not more than pay for the fertilizers and the extra amount of labor resulting, there is, of course, no profit in the application, and no incentive to strive for increased production. In making the following remarks on the experiments referred to above, we have been guided by this idea, and made corn fifty cents per bushel, and potatoes forty cents.

In fifty-three experiments with corn, *nitrogen*, derived from nitrate of soda, paid in eight cases only; on potatoes in four cases only out of nineteen.

In the experiments with *phosphoric acid*, derived from dissolved bone-black, corn paid in only twenty-one cases out of fifty-three, and potatoes in twelve cases out of nineteen. This is a poor showing for corn, as superphosphate is generally accounted as one of the most reliable fertilizers for this crop.

In *potash*, derived from muriate of potash, corn in only twenty cases out of fifty-three, and potatoes in only eleven cases out of nineteen. This showing is quite disappointing, as potash has been claimed as the dominant element required by potatoes.

In fifty-two experiments reported in which *nitrogen* and *phosphoric acid* were supplied, corn paid paid in fourteen cases only; the cost of the nitrogen has been such a drag on corn in these experiments that it reduced the number of cases in which phosphoric acid alone was used by fully one-third. Potatoes paid in eleven cases out of eighteen reported; the increase from the application of phosphoric acid was decided enough to more than balance the dead weight of cost for nitrogen.

With *nitrogen* and *potash* corn paid in only eight cases out of thirty-seven reported. potatoes in six cases out of twelve.

With *phosphoric acid* and *potash* corn paid in only twenty cases out of fifty-three, but potatoes paid in fifteen out of the eighteen cases reported.

In the complete fertilizer, supplying nitrogen, phosphoric acid and potash, corn paid in only thirteen cases out of fifty-three, potatoes in seventeen out of nineteen.

From the last two paragraphs it would seem that any good fertilizer containing phosphoric acid and potash, if sold at a fair price, will be tolerably sure to pay when applied to potatoe land. As nitrogen has been only a drag on this crop, phosphoric acid derived from dissolved phosphate rock would do as well as any, and is cheaper than that from fresh bones.

Finally the whole series of experiments has confirmed me in what I have before insisted on, that at present relative prices of produce and fertilizers, there are but few crops that will pay to use them, the exceptions at present being truck, tobacco and potatoes.—*A. B. K.*

SELECTIONS.

PRACTICAL HINTS FOR APRIL.

Barley.—A fine condition of the soil is indispensable for this crop. Old barley growers know all about this, but many want to grow barley because it is a profitable crop when successful. It will succeed in any good, well prepared soil, but a mellow clay loam which can be brought to good tilth is to be preferred. But good crops of bright grain may be grown on lighter loams if in good heart. It may be made an excellent soiling crop to follow clover, and as a change from oats. We prefer to sow thickly, say 2½ bushels per acre, but opinions vary in this respect, and from 1½ to 2½ bushels is the range.

Oats.—Early sown oats in our hot climate are, as a rule, better than the late sown. Our climate is not so favorable for oats as the cooler northern and northeastern ones. There oats are heavy and plump, and seed from Canada, Nova Scotia and New Brunswick will produce well for two or three years. By using seed from these northern localities, oats may be grown in the Middle States weighing from 35 to 45 lbs. per bushel.

Corn.—This is one of those crops which require a warm soil and which suffer from a late frost. But the ground may be prepared in season to help on the planting afterwards. As good a crop may be grown on stubble as on sod if the right method is followed; and this is simply to give sufficient manure and thorough cultivation. 100 *bushels per acre* may be produced, and this means double or treble pay for the same labor. Far larger crops than this have been grown, and of late years, thanks to the general diffusion of scientific knowledge through the best of the agricultural journals, the average yield of this grain has been doubled. A yield of 75 or 80 bushels is now secured where 30 or 40 bushels used to satisfy farmers. The use of fertilizers and good methods of cultivation have effected this; but the same means may be made available for even larger yields, and one should never stay satisfied with a large crop, but try for still greater ones. The time of planting of course varies with the latitude, and these remarks apply when corn-planting is in season.

Cows.—Garget and abortion trouble the dairymen. We believe in prevention. The former may surely be prevented by due care. As soon as the udder contains milk, it should be relieved by drawing off a part of it, if there is any tendency to hardness. These diseases are often a consequence of weakness. A fat animal may be weak for want of food. When a cow's time approaches and the feed is suddenly reduced, disturbance of the system is caused. Circulation becomes irregular, and congestion occurs in the most susceptible organs. The udder is the principal one of these at this period, and an attack of garget is very sure to occur. This may not always be so, but long experience and observation convinces us that it generally is. The remedy is obvious.

Swine.—Corn is high, but so is freight, and as 800 lbs. of corn may be carried in a pork barrel, it is a question if it will not pay to feed 50 cent corn to 4 cent pigs. Every bushel of corn fed relieves the market of a surplus, and makes the remainder more salable. This is to be considered. Also the fact that there is a kind of pig that may be fed the most profitably and that one kind is the one to discover and choose. Hereafter farmers will *save* their profits in all probability, just as is done in other manufacturing business. Animals are living farm machines.

Orchard and Nursery.

Whoever sets out an orchard of course does it with the expectation of a return in fruit. No one plants corn or potatoes without first considering if the land will give him a crop; if the soil is not in the proper condition he knows that he must make it so, or lose his seed and his labor. Much less than corn and potatoes can fruit trees make a crop on nothing. The trees will struggle along, do the best they can, but such orchards do not pay, and "run out" early. Unless the land is sufficiently fertile for an ordinary farm crop, it should be made so; no soil too wet for such crops will answer for fruit trees, which, to succeed, need well drained land. The plowing should be as deep as the character of the soil will allow, and the sub-soil plow may generally follow the other with benefit.

The Trees. It is assumed that trees were ordered some time ago; they should be at hand ready for planting. It is the custom at nurseries to take up and heel-in a large stock of the kinds of trees most called for, this retards the growth, and allows them to fill late orders. If there is a nursery near at hand it will pay to make a bargain, if possible, to help dig the trees yourself, and thus secure a larger share of the roots that belong to them. If trees, in a long journey, become dry and shriveled, bury them, root and branch, in mellow earth for a few days, when they become plump again. In unpacking the trees, look to the labels, as some may become detached and would otherwise be lost.

Preparing the Trees.- Everybody wishes to get all he can for the money, and the nurserymen send much larger tops to the trees than the pruned roots in their new positions can support. It is safe to shorten the branches one-third or one-half, but it should be done with judgment and reference to the condition of the roots. At the same time pare smooth any broken or mangled roots.

Planting.—In setting a tree take time to do it properly; spread the roots evenly and to their full length, and so work in the soil among them that there will be no hollow places. Water may be used to carry the soil among the roots—not dashed in by the pailful, but showered from a watering-pot. Do not stamp the soil down around the roots, but firm it carefullly with the foot. The tree should be set no deeper than it stood in the nursery.

Crops.—The soil of a young orchard may be kept in cultivation until the trees begin to bear; grain should never be grown, except Indian corn, but potatoes and root-crops are the best.

Insects.—Destroy the eggs of the Tent Caterpillar, which are to be found in small closely fitting rings or bands near the ends of the smaller twigs, and may be cut away. Many insects harbor beneath the loose bark of trees, and by scraping this off and washing the trunk and limbs with a solution of soft soap, much good may be done. To prevent the ascent of the wingless females of the Canker Worm, use heavy brown paper bound closely around the tree's trunk, and then smear with cheap printer's ink or tar. The bands will have to be re-coated at frequent intervals through the season.

Fruit Garden.

Currants and Gooseberries.—Prune at once any that have been omittted; abundant manuring and mulching will increase the size of the crop and the fruit. So soon as the leaves are of much size the "worms" may be expected. Examine the under surface of the lower leaves for the eggs, and destroy all that are found. When holes are seen in the leaves apply White Hellebore, either sprinkled dry or mixed in water, a tablespoonful or so to a pailful of water. It is better to first scald the Hellebore with a little boiling water before adding it to the pail containing the cold water. Keep stirred.

Asparagus.—The old ideas about the elaborate preparation for an asparagus bed are out of date: it is as easy to make a bed for asparagus as almost any other plant, and nothing pays any better for the little trouble. Set the new beds so soon as the plants can be had, giving it a generous manuring, and putting the crowns about four inches below the surface. Rows two feet apart, with a foot between the plants, is a good distance for the family garden, but if room can be spared the

distance may be increased. Let the plants grow until the third year before cutting. The coarse litter should be raked from the old bed, to make it smooth and clean, before the stems begin to come through the ground.

Early Potatoes should be put into the ground at the earliest possible date. When started in boxes they may be greatly hastened; in planting take care that the tender sprouts are not broken off. The soil should be light and warm for early potatoes.

Flower Gardens and Lawns.

Lawns.—Nothing is more pleasing than an expanse of smooth, rich, green, nicely kept grass. The lawn should be one of the features of every pleasure ground, no matter how limited in extent, and in laying out the walks and drives they should not divide the lawn more than can be helped. In making a lawn the soil should be first thoroughly manured after which, for heavy soils, Kentucky Blue Grass seed should be sown in abundance: for light soils Red-Top is the best. It is well to sow the seed in two or more directions, thus securing a more even distribution, and therefore a better turf.—*American Agriculturist.*

HAVE YOU A STRAWBERRY BED?

This question is put to every reader who has the land, and especially to every farmer, who, having the land, is very apt to not have strawberries. Without taking space to inquire why the farmer, who of all others should have an abundance, so generally has no strawberries, we put in our plea for his family, and insist that he shall provide them with this excellent fruit—not only a few as a luxury, but an abundance. There is just one time to make a strawberry bed, and that time is now! Under any circumstances a strawberry plant must grow a season before it will give a crop; there is no way in which plants may be set this spring and give fruit the same season. If any "nursery agent" offers such—don't buy them. Much that has been said about strawberry culture has conveyed the impression that it is a great deal of trouble; that runners have to be cut off and much care given otherwise, while in fact it is no more trouble to raise strawberries, than it is to grow carrots. But the cost? Is very little—nothing compared with the result in fruit. One can begin as small as he pleases; if he cannot afford the outlay for a large bed, let him buy enough for a start and raise his own plants. It makes no difference where the farmer may be, if he gets the *American Agriculturist*, he can have strawberry plants—the mail brings both. A dozen, or a hundred plants come by mail, and when one has even but a dozen plants, his strawberry future is provided for. "It is the first step which costs" is a proverb. In this case "it is the first step which tells." While we have in view especially the family comfort, it may be well to consider that in most localities enough berries can be sold from the first crop to pay for the whole outlay—only don't sell and let the family go without, but have enough for both demands.

"*How many shall I plant?*" will be one of the first questions to decide. An ordinary family should have at least 200 plants, and generally 400 will not be found too many if the fruit is used freely. It is better to provide for an abundance.

What kinds?—If restricted to one kind, we have no hesitation in saying, Charles Downing. If there are successful strawberry growers in the vicinity, find what does best with them and plant the same kind. But we do not advise planting all of one kind. If 400 plants are set there may safely be four kinds. Charles Downing, Monarch of the West, Champion, and Sharpless, would be a good selection, but it may be varied and not go amiss.

How to plant.—Select a good bit of soil, all the better if it was in potatoes last year, and if practicable within sight of the house, and prepare it just as you would for a good crop of cabbages; this means an abundance of the best manure well worked in. Mark out the rows two feet apart, three if a cultivator is to be used, and set the plants one foot apart in the row, using a trowel to open the ground, and when the plant is put in, crowd the soil down firmly over the roots with both hands. Thereafter run the cultivator, hoe, or rake, often enough to make the soil mellow and keep down the weeds. The plants will by and by throw out runners; turn them into the row and let them take root. For the after treatment of the bed, consult "Notes about Work" at the proper season.

Raising plants.—If it is preferred to buy a few plants to start with and raise a stock to put out next year, set these two feet apart each way, and let runners form. Ashes are very useful to promote a large growth of runners. Finally, plant strawberries—and do it this spring.—*American Agriculturist.*

FENCING AND FENCES.

Since this series of articles on Metal Fences was planned during our summer trip through the West, there has been a very rapid and great advance in the price of iron and steel. In September, 1878, the Standard No. 1 Anthracite pig iron was selling at $16@17 per ton, and in September last it had only risen to $22@23—that is, to a trifle over one cent per pound. The last week in January it sold as high as $43 per ton, and to-day (Feb. 6) is quoted at $40@41—an advance of fully 90 per cent., or nearly double since last September 1. This has resulted from the great demand arising from the wonderful revival of business that took place as soon as our large crops were secured and the generally poor condition of crops throughout Europe became fully ascertained. This demand enables iron producers to charge their own prices, and they are realizing enormous profits. Such a state of things may continue for a moderate period, but when all the idle furnaces are in operation, and the new ones projected are in full blast, prices will be likely to fall back to figures affording only a fair profit. As a very large part of the cost of iron and steel fence materials depends upon labor, patent royalties, etc., the actual cost of metal fencing has not advanced correspondingly, and will not do so. Yet this rise materially affects, for the time being, the progress towards securing *iron* fence *posts* that can successfully compete with wood for ordinary farm use. But even at the present value of iron, there are, or soon will be found, *iron* posts which will be more than to use wood posts at a nominal price.

Iron and Wood Posts Compared.

Suppose we take the present cost of iron posts at 50 cents each. Several are now offered at this rate and under. The tables last month (page 51) estimated 100 rods of post and board fence at $100; and of wire fence with wooden posts at $67.25. Taking similar figures we have

FOR 100 RODS OF FENCES:
(Galvanized Steel Wire or Strap, 4 Strands High.)

WOOD POSTS.		IRON POSTS.	
400 Rods Wire, at 11c.	$44 00	400 Rods Wire, at 11c.	$44 00
100 *Wood* Posts, at 12½c.	12.50	100 *Iron* Posts, at 50c.	50.00
400 Staples	.75	Labor about	7.50
Labor about	15.00		
Total	$72.25	Total	$101.50

Two men with a single horse and wagon should distribute the material, *drive* the iron posts and put up 100 rods of wire in two days, at a cost of $7.50. This gives a cost for iron posts over wood of 30 cents per rod (less than 2 cents per foot.) But for the increased outlay to start with, we have a *permanent* fence, one occupying the smallest possible amount of ground, one scarcely needing any repairs for half a century, and one indestructible by fire. We are quite sanguine however, that with the present interest and the great activity of inventive minds, we shall very soon learn of some form of iron post that will be both effective and cheap, at a cost considerably below 50 cents each.

Non-Destructible, Non-Combustible Wooden Posts.

We are glad to learn that hopeful experiments are now being made towards producing a wood fence post that shall be both non-combustible by any ordinary fire, and practically non-destructible by the weather or ordinary decay, and at an increased expense of only a few cents per post. The information is private and confidential as yet, and we can not judge as to the probable success, but we do not see why, with the Kyanizing process long successfully practised, and with the new application of asbestos there should not be valuable results in the direction indicated. Perhaps by applying such improvements to the cheaper, more abundant varieties of wood, we may get such prepared posts at about the present cost of those made from cedar, chestnut, and like comparatively durable timber.

An Important Point in Favor of Wire Fences

is referred to by several of our readers, which, summarized in nearly the language of one of them, runs thus: "I raise winter grain mainly, and my fields are subject to snow-drifts. Formerly I usually lost a pretty wide strip of wheat along the wooden fences, owing to the heavy snow-drifts remaining so long on a strip two to five rods wide on at least two sides of the field. I have now four ten-acre fields fenced with barbed wire and small cedar posts. These do not check the wind so as to produce snow-drifts, and I save wheat enough to pay the cost of the wire in every two or three crops, while the fence will outlast half a dozen rail fences, I think. Two of these fields adjoin pasture fields, and on the sides next these pastures I have spiked slim long poles upon the posts four feet from the ground. These do not stop snow, but warn off animals, and so far I have had no accidents."

Another correspondent writes that his fruit trees were often girdled by mice that found good winter quarters in the snow-drifts along his old wooden fences. Two years ago last summer he substituted wire fences, partly barbed and partly plain wire, and has had no snow-drifts and no trouble from mice, by taking the precaution to remove or trample hard any considerable bodies of snow that gathered around the trees; and further, that since the removal of the wood fences the mice have had no breeding places, and they have mainly disappeared, so that this winter he will not take any trouble with the snow around the trees.

Specific Loss and Gain.

A subscriber in Central New York, states figures thus: "In autumn of 1878, I sowed winter wheat in a field with a high rail fence on one side, 70 rods long. The snow-drift killed a strip full 4 rods wide, or 280 rods—just 1¾ acres. The rest of the field averaged 24 bushels per acre, and I sold my wheat at $1.45 per bushel. The 42 bushels lost by the snow, were worth $60.90. Here was a loss on one crop of enough to have built a new wire fence, with iron posts, along the whole 70 rods—a fence that would be permanent for a life-time, and need no repairs."

Another writes from Wisconsin: "I have fields fenced with wood, and others with wire. My observation is, that the latter can on the average be worked at least a week earlier in spring; the former is wet and cold on the borders, long after the rest, owing to the snow which has been caused to lie in drifts by the wood fence. The wire fence does not produce perceptible snow-drifts."

Mr. R. C. McWilliams, an old subscriber of the *American Agriculturist* in Northumberland county, Pa., personally gives us items from his experience with barbed wire fence. He has not discarded its use, and does not absolutely condemn it; hopes the embankment described last month (page 52), or some other device, will render it less dangerous. He had a valuable cow that had one leg cut down to the bone, "nearly half off," and the flesh badly torn by the fence barbs. She was a long time in a dangerous condition. A $200 horse had both legs cut, and a wound on the side. He had paid $18 for a veterinary

surgeon's attendance, had the horse laid up three months, and it was not well yet. He thought the present value of the horse might be $50 for ordinary work when fully recovered, though he could only get an offer of $30. His father-in-law, Dr. Jacob Reigard, of Ogle county, Illinois, has a half mile of barbed fence, and though not entirely satisfied with it, does not condemn it.

H. L. Raven, of Travis county, Texas, writes us: "As to the injury of live stock, which seems to be the great objection to barbed wire here, my own experience is that the danger is not of great extent. I have had no serious accidents. Only one horse has scratched itself, though I have put into the pasture horses that had never seen a wire fence. But it is best to be careful and not crowd animals towards these barbed wires until they learn where they are. Barbed wire will be a great boon to Texas, enabling us to put into cultivation large tracts of land that would have lain idle without it."—*American Agriculturist.*

PLEURO-PNEUMONIA.

At a stated meeting of the Philadelphia Society for the Promotion of Agriculture, Dr. J. W. Gadsden read a paper on "Pleuro-pneumonia and its Suppression." It is stated that the disease is better known as "The Lung Plague of Cattle." It is a malignant fever introduced into the system of a healthy animal by contagion. It is a specific disease, different from all other diseases of man or beast, not influenced by exposure to inclement weather, bad ventilation, changes of temperature, &c., which might cause ordinary inflammation of the lungs. It is the most destructive of all cattle disease because it is the most insidious. It has a period of incubation which is variable and there is often an interval of from one to two months from the reception of the contagion to the first general symptom of the disease. The usual time, however, that it remains latent in the system appears to be from ten days to two months. In many cases this disease creeps on very slowly, the only symptom being a slight cough but of a peculiar character.

Dr. Gadsden maintained that this disease never originated in this country, but spreads as the result of contagion; therefore it can be prevented. In winter, when the cattle are confined to the stables, and but little communication with other herds takes place, this malady diminishes in severity. Virginia supplies a large number of the cattle sold at the Baltimore cattle markets. Up to November 1st the special of the governor quarantined 27 herds, which included 408 animals.

Dr. Gadsden examined cattle with this disease in the States of New York, Pennsylvania and Virginia, and has no hesitation in declaring the disease there prevailing to be the same which occasioned such losses in England. It is quite time our people had awakened to the importance of this subject, for Canada is now endeavoring to secure the cattle trade of the country. In Philadelphia alone the Philadelphia Steamship Company had made arrangements last spring to ship 700 head of live cattle per week in England, but the entire trade is now stopped by reason of the embargo.

The question is how can we get rid of this disease? Certainly not by the pennywise and pound-foolish method of cheap inspectors. Cheap terms with the unfortunate owners of diseased cattle, promising them $5 a piece when they could get $20 by selling them to a dealer, and allowing the cattle markets, railway stations and ferries bringing cattle from other States to be unguarded. Baltimore has been sending us about 400 per week, and it is estimated there are from one hundred to one hundred and fifty diseased cattle in its vicinity. Maryland has no law to prevent the sale of such animals.

The official report on pleuro-pneumonia among cattle in the State of New Jersey states that from recent investigation made it is evident that the disease was being introduced from Pennsylvania. Four months' inspection have discovered sixteen lots of diseased cattle, containing 217 head, 10 of which were found infected with contagious pleuro-pneumonia, and, with the rest, sent back to Philadelphia.

Mr. Thomas J. Edge, Secretary of the Pennsylvania Board of Agriculture, stated he had an interview with the governor relative to the diseased herd at Elm station, on the Pennsylvania Railroad. The governor expressed a desire to co-operate in anything done according to law. Although the law permits the killing of diseased cattle, there is nothing to permit the killing of cattle not diseased. In one herd in Lehigh county ten animals were found diseased. The governor proposed the animals should be paid for at the time of killing. The only way in which the disease could be got rid of was to take possession of the herd and treat them as if they belonged to the State. Even then that might not prevent the disease, as the diseased cattle are constantly arriving from Baltimore. There are scattered all over the State some 300 or 400 official reporters, whose duty it is to report all cases of diseased cattle. The average price paid for the slaughtered cattle is $16.71. Since March 27, 128 animals have been killed, and the price paid was $1,162.50.

SUGAR—A GREAT PROBLEM SOLVED.

A writer, who subscribes himself "W." and dates his letter Washington, March 6, says in the New York *Herald*:

From a visit to the agricultural building, this day, the writer returned with the conviction that surely within the next ten years, and probably within the next five years, the production of sugar within the limits of the United States will supply the demands of our 50,000,000 of people, and that in this production not only will there be a gain annually to the wealth of the country equal to $200,000,000, but even our Northern border states will become self-supporting. In other words, from recent discoveries made and new processes applied in the production of sugar from the raw material, our sugar producing belt, from the superior profits of the culture, will within a few years embrace all our territory in which sorghum or Indian corn will come to maturity.

Colonel Robert C. Murphy, formerly United States consul general in China, but now engaged here in the agricultural department, called the writer's attention to this important subject; first in a reference to the facts presented in the interesting agricultural report for 1877 of Commissioner Le Duc, and next in an introduction to Professor Collyer, the chemist of the department, the general results of whose experiments in the production and crystallization of sugar may be ranked in importance with the invention of the cotton gin.

It appears from the commissioner's report that the several attempts to make sugar from beets in this country having been abandoned as profitless, and in the attempts of twenty years to make a merchantable sugar from sorghum having failed down to the new processes of 1877, it had become a settled opinion that only from the tropical cane and the sugar maple tree could sugar be profitably made in the United States. But the maple sugar is an inferior article. Our product, some twenty-eight million pounds in 1860, is but a small item in the general consumption; and the limited belts of maple groves along our northern border, by the axe and by fire, are fast disappearing. The sugar production from the tropical cane in this country is confined to a narrow belt bordering the gulf of Mexico. The total production of this strip last year was about 25,000,000 pounds, while our importations from abroad were 1,741,650,000 pounds of sugar, besides molasses, melado and other forms of sucrose, being about 300,000,000 pounds increase over the imports of the preceding year.

It is estimated that the annual consumption of sugar in the United States does not exceed forty pounds per capita, while in England the consumption is sixty pounds per person. It may be safely assumed, therefore, that with an abundant supply of a cheap, pure and wholesome home grown sugar our consumption would soon increase to sixty, and perhaps eighty pounds per capita. At sixty pounds, the English average—the French much higher,—our fifty millions of people would consume three thousand million pounds of sugar, which at seven cents per pound would be equal to $210,000,000. But the Crystal Lake sorghum sugars of Weidner & Co., of Chicago, sold last year at ten cents per pound, and at this figure our farmers have now in sorghum and Indian corn the canes from which they may add annually fully $200,000,000 to the wealth of the country.

Two years ago this great desideratum was held to be so far beyond our reach as to be utterly unattainable. Now, with the improved and cheap machinery and chemical processes employed, the profitable production of sugar from sorghum and a superior mercantile sugar, too—is placed within the reach of every farmer on whose lands sorghum or Indian corn will grow. Some twenty-three years ago the attention of the farmers of the country, North and South, began to be actively drawn to the growth of sorghum, and several varieties—African, European and Central American—were widely distributed and cultivated. During the war for the Union so general had the cultivation of this cane become throughout the South that from Virginia to Texas the people of the Confederate States for their "sweetening" were reduced almost wholly to sorghum syrup or molasses, all attempts to crystallize it having proved futile; hence, since the war, the general decline in the sorghum culture North and South until the last year, from which we may date the rising of a "big boom" for sorghum, which will push forward our home production of sugar until it is numbered among our exports to England.

Without troubling you with the tables of figures, the results of the numerous chemical experiments made at the agricultural department in the crystallization of the juices respectively of the Louisiana ribbon sugar cane, a half a dozen varieties of sorghum, and several kinds of Indian field corn, it is sufficient here to say that from these experiments the general results include the following:

From the juice of the Louisiana ribbon sugar cane (the choicest variety) the highest percentage obtained was:

	Per Cent.
Sucrose (or true cane sugar)	16 50
From the early amber sorghum	17 00
From the Chinese sorghum	13 90
From the white Liberian	15 26
From the Honduras	16 10
From the pearl millet	11 30

And from the samples on exhibition all these sorghum sugars are of excellent quality. The general conclusion, from the numerous chemical examinations made, is that there exists but little difference between the various kinds of sorghum as sugar producing plants, and that the juice of each of them is, in its full development, nearly as rich in sugar as the best tropical cane produced in this country. Professor Collyer says that from an acre of the Honduras sorghum he has obtained two tons of sugar, and from three other varieties, one ton of sugar each. The larger yield from the Honduras plant is mainly attributable to the stage of development at which the stalks were gathered for the grinding. Now, bearing in mind the fact that sugar and syrup have been made from sorghum by the carload the past season, which commanded the highest market price, and that the cash value per acre above all the costs of its production, is such as to make it a more profitable crop than wheat, Indian corn, tobacco or cotton, it cannot be doubted that, with the diffusion of this information, the cultivation of a field or two of sorghum for its sugar will be generally adopted by the farmers of the country: first,

as an experiment, and next, on a larger scale, as a regular crop from year to year.

But the most remarkable results from these experiments in sugar making obtained by Professor Collyer were from Indian corn. From an acre of land planted last year with a common white field corn, known as the horse tooth, from the shape of its kernel, he gathered the ears when fully ripe, and their yield of shelled corn was sixty-nine and one-tenth bushels—more than double the average crop per acre of the country at large. Next, stripping and grinding the stalks and working up their juice by the new processes, he extracted from it 960 pounds, or nearly half a ton of sugar of a good quality. Here, then, from the stalks—thrown out by our farmers into the refuse of the barn yard as fit only to be reduced to manure—a more profitable crop has been obtained than the corn. Nor is this all. The pulverized stalks, after the extraction of the saccharine juice (to the extent now practicable, sixty per cent.) have proved nutritious food for cattle, from their elements of starch and nitrogen retained. Applying this extract of sugar to the Indian corn crop of the United States—that is, to the rejected cornstalks—they would give us an income which, within the brief period of ten years, would extinguish our national debt.

Incredible as this fact may appear it is deducible from the product of 960 pounds of sugar obtained from the stalks of an acre of Indian corn, in addition to their yield of sixty-nine bushels of good shelled corn. Or take it in another form. Putting our Indian corn crop at the average of $400,000,000 in value, and estimating the sugar in the stalks at only half the value of the corn, with the production of so vast an amount of sugar we have still in these cornstalks gold and silver to the amount of $200,000,000—more than double the sum of gold and silver extracted from all our mines between the British Dominions and Mexico, and equal in value to the cotton crop of all our Southern states.

When the first Napoleon, when France, under the blockade of the English navy, was cut off from her foreign supplies, offered a reward of 10,000f. for a home produced substitute for the sugar of the West Indies which could be produced equal to the wants of the French people, he secured a reward worth incalculably more to France than all her victories in the battle field—a reward the value of which cannot be reached in the millions of money saved to France in her beet root sugar. How, then, can we estimate the value of these new appliances which render the production of sugar from sorghum and cornstalks a more profitable industry on our large Southern plantations than cotton, and on our small Northern farms yielding a richer return than corn, wheat, grass or potatoes?

The old Mexican inhabitants of Santa Fe, New Mexico, will tell you that from their grandfathers they inherited the secret of extracting sugar from cornstalks, and that the corn fields of their valley for generations gone by have supplied those people their bread, meat and sugar, to say nothing of the whisky—a "Yankee notion." We find, too, that our forefathers of the war of independence knew something of the saccharine value of cornstalks, from the extract of a letter written by Abigail Adams to her husband. John Adams, dated September 24, 1787, which is as follows:

"An instance may be seen in the progress which is made in grinding cornstalks and boiling the liquor into molasses. Scarcely a town or parish within forty miles of us but what has several mills at work; and had the experiment been made a month sooner, many thousand barrels would have been made. No less than eighty have been made in the small town of Manchester. It answers very well to distill, and may be boiled down to sugar. There are two mills fitting up in this parish. They have three rollers—one with cogs and two smooth. The stalks are stripped of the leaves and tops, so that it is no robbery upon the cattle, and the juice ground out. 'Tis said four barrels of juice will make one of molasses, but in this people differ widely. They have a method of refining it so that it looks as well as the best imported molasses."

Had these beginnings in the way or substitutes for foreign sugar been actively and perseveringly followed up we can no longer doubt that some thousands of millions of dollars would have been saved to the country, which have been spent in importations of sugar and molasses. Now, this new industry opened to our Southern planters, Northern farmers and capitalists, offers such profits from a crop of sorghum and cornstalks, and from the extraction of their sugar, that our home product of all grades, from the coarsest browns to the finest whites, will soon turn the balance of trade on sugar, and likewise in rum and molasses, in our favor.

The strongest argument in support of the scheme of the annexation of the island of St. Domingo was the plea that it would render us independent of Cuba in the important article of sugar. This plea now falls to the ground. The new machinery and processes employed in the extraction and crystallization of the sugar from the sap of sorghum and cornstalks are simple and comparatively inexpensive. Sorghum sugar, worth ten cents, can now be produced, all costs included, at less than four cents per pound. The machinery and implements employed include grinding mills, drying pans and centrifugal driers. They are now at Chicago, operated by steam, and many persons are preparing to follow the profitable example of the Chicago firm already referred to, on the score of at least a ton of sugar per day. There is room in this work for hundreds of small factories in the United States, for the nearer the mill is to the sorghum and corn fields the cheaper will be the carrying of the stalks to the grinder. Any further light that may be desired by the reader on this important subject can be obtained at or from the agricultural department. The object of this communication is simply to herald the advent of a new industry among our people; no *morus multicaulis* fallacy, but a highly profitable field of industry, equal to the gain of $200,000,000 to the country, and wide as the zone of sorghum and Indian corn.

THE QUESTION OF FRUIT CULTURE.

Since the publication of my article of Feb. 11, on the subject of fruit culture in Berks county, I am glad to see the subject taken hold of by so practical a farmer as Casper Hiller, and brought before our Agricultural Society. It has not only awakened the progressive and thoughtful farmers, but others testify that there are as remunerative crops to be raised in fruit as tobacco produces. I met one of our farmers a few days ago, who confirmed what was then written as to the value of moisture on fruit, and explained, by a diagram, the positions of several pear trees set out on his farm, and the astonishing difference in a few years. "To me," he said, "it was inexplicable at the time, but since reading the article it is all very plain—moisture."

The Olive.

I am told the olive will bear only when its roots are in close proximity to constant moisture, or when a system of irrigation is adhered to. I have seen shellbark trees, just on the verge of a stream, the nuts of which would drop into the stream, to the annoyance of the writer, bear annually, while others a distance off, sometimes failed of a crop.

I do wish Mr. Hiller had gone further in the subject and given his opinion, based on actual experiment, as to the picking of fruit.

Picking Fruit.

My informant told me he allows no inexperienced persons to pick apples, as they are likely to destroy the bud prepared for next season's crop. There is reason in this, and may account for the "off year" in many of our kinds of apples. A few bear annually, we know, but this does not by any reasoning disprove the theory. For if *half* the buds produced apples the same season it would be called an *extraordinary crop*. This is generall observed on trees which *bud* prolifically.

Destruction of Forests.

Mr. Hiller might have boldly asserted that to the destruction of forests can be attributed the failure of fruit crops. Not so much on account of the protection against storms, but on account of exposing the whole surface of the earth during the summer to the scorching rays of the sun, and often to the drying winds of fall and spring. How many thousand little springs bubbling from many hill sides in the county are now seen no more! What citizen of Manor township or Mountville does not remember the large ponds in Mr. Berger's woods, south of Mountville? They were constant and never-failing until the forests were cut away. Where are they now?

A Theory for Failures in Fruit Crops.

How many thousand trees drew their sufficient moisture from these constant and never-failing reservoirs, no one can tell! The surface of our county having a sub-soil of clay, impervious to water, who can tell how many trees were watered by the thousand springs which are now no more, as they went meandering silently between the mould and clay strata before bursting forth from their confinement.

Insects.

The most destructive insects to fruit can be readily destroyed by the methods used by Mr. Grisemer as related in a former article. If plums and such fruit are attacked, the best plan yet discovered is to carefully pick up all the fruit which drops to the ground before ripe, and cast it into the oven. One person ought not to do it, but every one who has such fruit, and by destroying the larva we rid ourselves of the pest.

Preserving Cider.

Some people have difficulty in keeping their cider sweet and palatable, and most frequently when they begin to use it. Mr. Grisemer says: "Let it stand until it has the desired taste. Clarify with the white of an egg if you want to. Tap off into the barrel you wish to keep it in. Pour into the bung olive or linseed oil, several tablespoonsful (sufficient for a covering), and you can use it any time, as the scum or coating produced by the oil will prevent the air from changing the taste. The oil will not be tasted, as it will not mix and not escape until opposite the spigot."

Fruit vs. Tobacco Growing.

I sincerely hope our people will begin to give the subject of fruit culture more attention, and not allow themselves to run wild on the subject of tobacco. That they are realizing handsome incomes from the production of tobacco is a fact. To produce from one hundred to five hundred dollars worth of tobacco on the acre is considered a pretty fair compensation for labor! But suppose your orchard of one acre had received so much labor as the tobacco, is it not reasonable to suppose, judging from the experience of others, that the orchard would have produced 500 bushels of apples. They were worth more than one dollar per bushel. Would it not be more pleasant to see a boy eating your luscious fruit, at a cent apiece, than to see him smoking a "two for five," or taking a chew from a five cent plug? Consider these things. I do not intend to discourage its production; but before we go too far let us reason a little.—*R., in New Era.*

RESOURCES OF THE SOUTH.

The following address was read by Hon. Frederick Lauer at a recent meeting of the Berks County Agricultural Society:

To the request of the last monthly meeting of the Berks County Agricultural and Horticultural Society, to prepare an essay giving the result of my recent trip through the South, I take great pleasure in responding. Agriculture is the foundation of every civilized government, and too great impor-

tance, therefore, cannot be given to the subject of the cultivation of the soil. Cvilization and culture had their origin in the south of Asia, in the country extending from the Euphrates river to the Mediterranean sea, including that lovely agricultural section, Palestine. Thence these hand-maidens of Progress continued into the countries of Europe, spreading their gentle influences through Turkey, Greece, Italy, France, Spain and Portugal; also through the north of Africa, including Egypt, Algiers, Morocco and other countries. Now coming to our country, the United States is possessed of all advantages which marked those countries of the old world in which agriculture and horticulture first spread their civilizing influences. For diversity of surface, fertility of soil, and attractiveness of climate no country possesses greater advantages than the United States, and of all the different sections of our beautiful country, none present better inducements to agriculturists than that portion along the southern Atlantic coast and the Gulf of Mexico. The first discoverer of this continent, Christopher Columbus, landed on our southern coast, and other adventurers of the same period landed among the West India Islands, or the coasts of Florida or Georgia. The French settled Louisiana, and the Spanish, Florida. The original forts erected by the Spaniards at St. Augustine, Fla., three hundred years ago, are still in existence. These original settlers had no idea or desire of going North. They considered the soil and climate as satisfactory, exceeding, in fact, their most sanguine expectations, and their reports promulgated throughout the old country created a tremendous excitement, particularly in England, where religious persecution was in full sway. Sects like the Puritans were the victims of continual persecution, and they left in large bodies for the new world. In order that they might strike land early they took a northern course. The "May Flower" was the first to land at Plymouth Rock. However, their destination was Virginia, or some point still further South, but on account of their supply of beer having run short, the vessel was run into Plymouth Harbor, where a landing foleffecten, to await the comingof a vessel was lowing after them, which contained an ample supply of beer. The latter vessel, however, encountered storms, and the passage was a long and tedious one. The voyagers of the "May Flower" would not risk their voyage further South, without having an abundant supply of beer, so these early settlers concluded to remain at the spot where Boston now stands, and in the year 1637, Captain Sedgewick erected a little brewery for the purpose of supplying the settlement with beer. The facts here stated can be verified by records in the Congressional Library at Washington, D. C. It will thus appear that the cause of beer settled the Yankee States, and the South was deprived of the settlers who had intended that section of our country as their destination when they left their homes in England.

However, the Huguenots and other persecuted sects of France, adopted parts of North and South Carolina as their destination, where they established colonies and local governments. A great many Huguenots emigrated also north and east of Pennsylvania, and many even found their way into the eastern counties of this state, as is apparent from the prevalence of the French names of their descendants—the Bertolettes, Levans, De Turks, De Longs, Delaplanes, and many other families whose names might be mentioned, and who are among the most honored citizens of the county. On account of the sparsely settled condition of the country, and the productiveness of the Southern soil, the New Englanders and Spaniards opened the slave trade, which, however, proved a serious barrier to the rapid settlement of the country, owing to the odium with which slavery was regarded by the emigrants of that period. Most of the emigrants of that day came to this country to seek freedom, and they objected to locate where slavery confronted them on every side, but, now that slavery is no more, there are insuperable opportunities in the South, and room for fifty millions of settlers. I predict that in fifty years hence we will find the beautiful gardens of the world transferred from the countries which they have made famous—Italy, France, Spain, and the whole south of Europe—to the productive territory of North Carolina, South Carolina and Georgia. All along the Blue mountain ridge, or Appalachian chain, we find the finest region for grape culture on the globe. All those superior varieties of grapes from which are manufactured the celebrated wines of Spain, Portugal and France can be grown in the salubrious climate and upon the sandy soil of the South Atlantic States. The millions of the over-populated countries of Europe, unaware of the immense advantages of this country, hesitate long before they abandon their mother country—the homes of their youth—but when they do arrive upon our shores they prove to be among our most useful and industrious citizens. Upon their arrival they are usually worn out by their tedious sea voyage, and are averse to a further journey of eight or ten days, so they direct their course to the West, which can be reached in less than one-half the time than if they were to go South. In the West, however, they find that lands have already advanced to a high figure, and that the soil is best adapted to the cultivation of cereal crops. In the South, on the other hand, there is greater diversity of soil. All the crops can be produced that are usually grown in the West, while superior facilities are afforded for the raising of fruit and the grazing of cattle. A number of valuable crops, such as cotton and tobacco, can also be cultivated, which cannot be grown in the West. If such southern seaports as Norfolk, Wilmington, N. C., Charleston and Savannah possessed the advantages of lines of ocean steamers, plying between their ports and Europe, much of the foreign emigration which is directed towards the West, would find its way to the South, and that section of our country would be rapidly built up. Emigrants upon their arrival at these southern ports could be conveyed to their destination in from eight to twenty-four hours. The first settlers of the eastern counties of Pennsylvania came in colonies from the Palatinate and the Rhine, Germany. They wisely took advantage of the cheapness of the lands, and secured large tracts, which are now occupied by their descendants. The wisdom of their action is apparent. As the South may to a certain extent be looked upon as a new country, the same advantages may there be found, as were presented to the early settlers of Pennsylvania, particularly since the abolition of slavery.

The State of North Carolina offers many advantages to settlers. The climate is unsurpassed, being tempered on the one side by the Atlantic Ocean, and on the other by the high peaks and table lands of the Appalachian mountains. As the State has so great a length from East to West, as well as so considerable an elevation towards the interior, the range of climate is very great, from subtropical on the coast, within the influence of the Gulf stream, to cold temperature on the table lands of the West. Emigrants can thustake their choice, and enjoy any climate they please. Since my return from the South I have been asked as to the healthfulness of the country, and have found that there exists an opinion which is pretty general, that a residence of a number of years is necessary to become thoroughly acclimated, and that malarial diseases are frequent. I am happy to be able to state that these impressions are for the most part erroneous. It is true that malarial diseases do occur during the summer and autumn, but they are confined chiefly to a few localities in swampy regions, and along river courses. The middle and mountain sections are, however, remarkably salubrious. The statistics of the last census show that one of the two or three most healthy localities in the United States is found in the Western part of North Carolina, in the Blue Ridge region, and it may be indeed said that a more healthy climate cannot be found in the world. The soil and natural appearance of the country is much like that of this section of Pennsylvania. Land is cheap, and great inducements are offered to emigrants.

In South Carolina are presented many of the advantages to be found in North Carolina, the country in the interior of both States being very similar. South Carolina offers the additional advantages of great plains sloping towards the Atlantic coast, most favorably adapted for the cultivation of cotton. In both States there are immense areas of timber, the pine predominating in the eastern portions, and splendid opportunities are presented to capitalists desiring to engage extensively in the lumbering business. The State of Georgia is one of the most fertile of the Southern States, and should be especially attractive to Pennsylvanians, as all the crops usually grown in the Keystone State can be successfully produced in Georgia. In the northern portions of the State the soil is a mixture of clay and sand, forming a fertile loam, easily worked, while in the northwestern portion there is a large admixture of lime. The valleys are remarkably rich and productive, while there are many fine farms on the very summit of the Blue Ridge and Lookout range of mountains. There is scarcely a crop of any kind which cannot be grown in northern Georgia, and no more beautiful agricultural region exists in the United States than that in the vicinity of the cities of Atlanta and Rome. The surface of middle Georgia is rolling, and the soil generally red, with here and there a liberal admixture of gray, and very strong and productive. This middle belt presents many natural advantages. Embracing a territory about two hundred miles in length from east to west, and one hundred broad from north to south, intersected by numerous rivers and smaller water courses, the amount of water power available for manufacturing purposes is simply incalculable. It constitutes the heart of the cotton region, and the material is consequently at hand to be worked into the various fabrics. Ten railroads cross it at various directions, so that the transportation facilities are all that could be desired. Its drinking water is excellent, and the health of the country uninterrupted throughout the year. The southern portion of the State consists chiefly of sandy, pine land, with many fertile openings.

Besides the great staples of wheat, corn, cotton and tobacco, which can be grown with great profit in the States of North Carolina, South Carolina and Georgia, there are splendid opportunities for the cultivation of special crops, which cannot be grown in the North, and which yield handsome returns to the producer. There are millions of acres along the Atlantic Coast and Gulf of Mexico which are specially adapted for rice culture, and from which a profit of $200 per acre can be realized. The crop will always command a ready sale in this country and Europe, and the market cannot be overstocked. China alone feeds over 200,000,000 of her population on rice, and the failure of the crop in that far distant country is the occasion of disastrous famine, resulting in thousands dying daily, as was the case less than a year ago in China. As the soil of our Southern States is more productive than that of China, how many more millions can we feed? The cultivation of sorghum in the three States mentioned is also destined to become a great industry in this country, and all the sugar needed for home consumption can be produced as well as large quantities for export. The State of Florida, south of the St. John's river, is capable of supplying the whole of North America with tropical fruits, such as oranges, figs and other varieties, at a profit of several hundred dollars per acre. The streams of the South contain fish in great abundance, and a profitable

market has been opened in the North for shad and other species of fish caught in Southern waters, and with which the market can be supplied weeks in advance of the Northern fisheries. In the cultivation of fruit and vegetables for the markets of the large cities of the North a most lucrative business can be done. The extensive live oak and yellow pine forests of the South are able to supply timber barren counties of the Old World for at least another century or more. As to the mineral wealth of the South, and of North Carolina and Georgia in particular, too much cannot be said. In the two last mentioned States the first discoveries of gold in this country were made, and some of the most profitable mines would now be in operation in northern Georgia and the western portion of North Carolina if the discovery of gold in California had not diverted to the El Dorado of the Pacific coast the great masses of fortune hunters in this country. I venture to say, however, that there are gold mines in North Carolina and Georgia, which, if properly worked, would yield millions of treasure per annum. No section of the Union is richer in valuable iron ore deposits than the northwestern portion of Georgia, where Messrs. Noble & Son, formerly of Reading, are engaged in conducting extensive iron manufacturing establishments, and are the owners of thousands of acres of ore producing lands.

As to the "reign of terrorism" in the South, this is a bug-a-boo which should not deter northern emigration. Many of the most successful men to-day in the South are Northern men. The freedman has become accustomed to his freedom, and is no longer the victim of designing men. Recognizing the fact that the acquisition of property depends upon industry and frugality, he is devoting himself with greater persistency to productive labor, and the good results are seen on every side.

FLOWERS AND PERFUMES.

A writer in one of the magazines says: Odors are extracted from different parts of plants and flowers—from the root, as in arris and vitivert, the stem, as in cedar, sandal and rosewood; the leaves, as thyme, mint, patchouli; the blossom, as roses, violets, etc.; the seed, as the Tonquin bean, the caraway; the bark, as the cinnamon. But all the more delicate odors are chiefly derived from the corolla or blossom. After the orange—which enters in some shape or form very largely into the composition of countless essences, pomades, oils and cosmetics—one of the most useful plants to the perfumer is cassie. It is to be found in most of the favorite handkerchief bouquets; but alone it is too sickly sweet an odor to be agreeable. It is extensively grown at Cannes, and combines well with orange flowers, rose, tuberose and vanilla. Bergamot is another faithful ally of the perfumer. It is an essential oil, obtained by expression from the rind of a species of citron, and is to be found in the majority of essences, particularly in the celebrated *Ess* Bouquet. Of itself it is not a particularly pleasant odor, but combined with orris, musk, or other fixing scents, it is very fragrant. It is best kept in a cool, dark place, in closely stoppered bottles, which applies to all perfumes except essence or extract of rose; so that when ladies keep their perfume bottles on the toilet table in sunlight and gaslight, or, as is sometimes the case, on the mantlepiece over a fire, they should not be surprised if they soon lose their delicate subtle odor; in fact the purer and better perfumes are, the more susceptible are they to the influences of light and heat. It is a curious fact that some of the sweetest flowers are unavailable for the purposes of perfumery. Sweet-brier, for instance, and eglantine can only be imitated. No process has been discovered by which their delicate perfume can be extracted and preserved; but spirituous extracts of rose pomade, of flower of orange, neroli oil—also produced from the orange and verbena—when cunningly combined, very fairly imitate both. Lily-of-the-valley—another useless flower to the perfumer, though of exquisite scent in itself—is marvellously imitated by a compound of vanilla, extract of tuberose, jasmine and otto of almonds. Almost all lilies are found too powerful even for perfumery purposes, and are therefore little used, even in combination with other odors, for it has been found in many instances that they do not harmonize well with the "fixing and disguising" scents in general use. Most of the very sweetest flowers, it is said, are only successfully imitated, as wall-flower, clove-pink, sweet-pea. Magnolia is too expensive to be genuine. Myrtle is very rarely genuine. Real sweet-pea there is none, and heliotrope and honeysuckle are cleverly made up. Tuberose, vanilla, orange flower, violet, rose, jasmine and cassie, with orris and vitivert, musk and ambergris, in proper proportions and combinations, are the leading ingredients in most perfumes. Mignonette, sweet as it is in the garden, is almost useless by itself to the perfumer; and tuberose, one of the sweetest, if not the very sweetest flower that blooms, combined with jasmine, makes the perfume called stephanotis. By *enfleurage* it gives a most delicious extract; but it needs to be fixed immediately by a less violent scent or it will immediately evaporate. Fixed by vanilla or some other enduring odor, it is one of the most charming and useful essences in the perfumer's *repertoire*, and enters into the composition of almost all the favorite handkerchief bouquets. Cassia, otto of almonds, tuberose, and orris form two-thirds of the violet essence generally sold. The genuine essence of violets is only to be procured at special places and at exorbitant prices.

Of fixing or permanent scents the principal are musk, vanilla, ambergris, orris and vitivert. Orris is perhaps more used than any other, and enters largely into the composition of all our popular dentrifices. From the odors already known, we may produce by proper combinations the scent of almost every flower that blows, except the jessamine. It is the one perfume that defies spurious imitation. It seems almost needless to say that otto of roses comes chiefly from the East. The rose fields of Kasanlik, in Roumelia, and the sweet valleys of Cashmere, give us the *attar gul* renowned over the whole world. But there is a very sweet otto of roses made from the beautiful Provence roses that grow to such perfection at Cennes and Grasses. The flower has a rather subtle odor, arising, it is said, from the bees carrying the pollen of the orange flowers to the rose beds. The otto is obtained by maceration and *enfleurage*.

The whole south of Europe is what one might call the perfumer's happy farming ground. Canes and Nice are especially famous. There on the mild sea-coast grows the delicate cassie that can barely bear a blast; at the foot of the mountains the violets are sweeter than if grown in the sheltered valleys where the oranges, tube-rose and mignonette attain such a marvelous perfection. But flowers are grown for perfumery purposes in many other places. Nimes is famous for its rosemary and thyme. Nice for its violets, Sicily for its lemons and bergamot, and England is famous for lavender and peppermint, the latter always commanding a high price in foreign markets, as it forms the general mouth wash used on the continent. The lavender grown at Mitcham and Hitchin is about eight times the value of that grown in France and Italy, and for ordinary use there is no sweeter perfume than good lavender.

Just one word on the use of perfumes; and it is *moderation*. Persons, places and things are all the better and pleasanter for a little sweet essence, but see that it is a little. If some persons are too lavish in the use of their favorite bouquet, and turn what was meant for a refined pleasure into a vulgar nuisance, their extravagance is to be avoided rather than the perfume itself.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular meeting of the Lancaster County Agricultural and Horticultural Society was held Monday afternoon, April 5th, in their rooms in the City Hall.

The meeting was called to order by the President, Joseph F. Witmer.

The following members and visitors were present: The President; M. D. Kendig, Creswell; Casper Hiller, Conestoga; Daniel Smeych, city; Frank Griest, city; J. C. Linville, Salisbury; Henry Kurtz, Mount Joy; C. A. Gast, city; Ephraim S. Hoover, Manheim; F. R. Diffenderffer, city; Washington L. Hershey, Rapho; Webster L. Hershey, East Hempfield; J. M. Johnston, city; Dr. S. S. Rathvon, city; H. M. Engle, Marietta; J. B. Eshleman, West Hempfield; Dr. C. A. Greene, city; C. L. Hunsecker, Manheim; Peter S. Reist, Lititz; W. H. Bollinger, Warwick; William McComsey, city; W. H. Brosius, Drumore; John H. Landis, Manor; Dr. William Compton, city; Israel L. Landis, city; Isaac Hess, Manheim; S. P. Eby, city; Harry G. Rush, Conestoga; A. D. Hostetter, Millersville.

On motion the reading of the minutes was dispensed with.

Crop Reports.

J. C. Linville said grain looks remarkably well. Fruit buds are not injured; the prospect for a peach crop is good. About half the oats is sown. The fatted cattle have mostly been sold. All the clover in his neighborhood has been killed.

Henry Kurtz stated wheat as looking very well. Clover fields are "spotty;" many of them are being plowed down for corn. The tobacco men have also been busy and some have plants already up. There will be a little increase over last year. All the last year's tobacco is sold; that still on hand has been advanced in price by the holders.

H. M. Engle said wheat along the Susquehanna is doing remarkably well; clover is poor everywhere. The fruit crop is very promising. Pears won't yield quite as largely as last year. Apples promise a full crop.

Joseph F. Witmer said clover in Paradise township has not "missed;" his own looks well; a little oats has been sown; tobacco growers are getting ready for their work.

The Fair.

Jos. F. Witmer reported having communicated with the Northern Market Company, who agreed to let the society occupy the building during Wednesday, Thursday and Friday of any week in September, at the price of $20, and the payment of the gas, allowing the janitor to retain his stand in the market.

Dr. Greene stated the methods used in Berks county to get up the premium lists and have them published. He found that many farmers did not belong to the society, and he thought inducements should be offered them.

J. C. Linville thought the premium list should be offered as soon as possible.

H. M. Engle moved the society should accept the proposition of the Northern Market Company. Adopted.

Reading of Essays.

Dr. C. A. Greene read a lengthy essay on chemistry of soils and incidentally on chemistry in general. (See page 52.)

Wm. McComsey thought the essay contained hints in the proper direction. We have given the chemical properties of our soils too little study.

Henry Kurtz said the essay was a good one, but farmers were not enough advanced to understand it.

He gave some of his early experiences in liming; of the fine crops of wheat and grass raised by its use. So with phosphate and fertilizers; they are good, but the farmers do not understand them. He is afraid of some of these compounds and has been deceived by them.

J. C. Linville had bought a good many fertilizers and he is beginning to have confidence in them. He said the composition had the analysis printed on the packages, as required by the State. We must experiment as yet. We cannot analyze our soils as yet. Our limestone soils contain four times more of the elements to grow wheat than the wheat itself, but it must be largely in excess to give us good crops. He believed we should not put our fertilizers on at one time, but apply it as we see it needs them most.

Casper Hiller said the essay was right in theory, but we can't make it work in practice. Why this is so he did not know. Soils vary in the same field, and yield different results. We must have certain ingredients to grow corn; now, which of these have we already? He tried several experiments, and the only thing that gave satisfactory results was phosphoric acid; by applying this for years it would become excessive in quantity, and he would have the

same old trouble over. Three principal constituents enter into corn, and all we want to know is in which of them we are deficient.

Root Crops.

H. M. Engle read the following essay on the above subject:

This question will apply to almost any other farm crop. In reply I would therefore say that they are profitable under certain circumstances.

Root crops, as a rule, are great feeders, and therefore require well prepared and enriched soil, and in addition, thorough after-culture, to produce paying crops. The common turnip (of which there are many varieties) is most easily grown, and requires the shortest season of all root crops, and is at the same time of least value. Ruta-baga requires more care, and a little longer season, but are of more value as food.

Next come mangolds and sugar beets, both of which require a still longer season and consequently more cultivation. The former yields more tons per acre than any other root crop, while the latter is equal if not superior in nutrative elements to all other root crops, and to which I shall call special attention before I close. Carrots and parsnips require the entire season to mature, and as food for man and beast are very valuable. With proper attention they will yield in quantity with most other root crops. Yields are reported from a few tons to twenty-five, and even more, per acre, owing to soil, climate, and, above all, to management. No person wishing to produce the best results in milk and butter, and have his stock come out in spring as it should, can afford to do without some root crop. There is no (and never will be any) butter-coloring equal to that produced by feeding carrots, parsnips or sugar beets in winter. The present fashionable butter-coloring so much in use is doing more to hide defects in butter, and give it a good appearance, than to improve its quality, and does not give it that rich nutty flavor which is imparted by feeding roots of the best quality, and I doubt whether oleomargarine is more objectionable, at least not more deceptive. Both should stand upon their intrinsic merits.

The sugar question is becoming an important one to our country, in which the sugar beet will, at no distant day, play an important part. I wish, therefore, to impress the matter upon the minds of our farmers for consideration, so that we may not be lagging behind. I am well aware that in this and neighboring counties, where the tobacco growing mania is so rampant, it is an up hill business; but there are still a good many farmers who are conscientious in growing the weed, and not a few who are about half conscientious, and would not grow it were it not for the mighty dollar it brings. Now those who grow the weed without any compunction might for humanity's sake help produce some of the sweets of life, as an offset to the production of the nauseous, which causes so much embitterment to so large a proportion of the human family.

It will be admitted that sugar beet growing will never bring such large returns as tobacco has in years past, but for the purpose of sugar it has proved to return from $50 to $150 per acre, and, being less exhaustive to the soil than tobacco, and leaving the ground in equally good condition for a wheat crop, should be an inducement for farmers to turn their attention in that direction, and to have at hand not only more crops for rotation but also to add to our industries.

He also read an interesting article from the New York *Tribune*, advocating the cultivation of the sugar beet and making sugar from it. He advocated the cultivation of this important crop.

E. S. Hoover was interested in this subject. He believes nothing is so good a substitute for grass as good roots. The time will come when we will have as many root cellars as tobacco cellars; we may, in case the latter business declines, turn our tobacco cellars into root cellars. Beets are of more value than farmers are aware of. Roots will do away with the use of cattle powders. The time will come when farmers will provide themselves with roots as regularly as with hay, and when they will be one of the regular farm crops. They are especially valuable for dairy purposes. They are not properly appreciated by our farmers. No food can be provided with the same labor that will do as much good. Nothing keeps cattle in such good order as roots.

J. C. Linville was glad this root business was called up. He has grown them for years and with favorable results. There is not so much nutriment in them, but they seem to aid cattle in assimilating other foods. He believed all farmers should grow more or less. As milk producers they are excellent; slightly fermented, they are better feed than when not. Do not feed too strongly of beets; one feed a day is enough. He practices this method. He has difficulty in growing ruta-bagas; sugar beets have done well with him.

Henry Kurtz wanted to know how many tons of beets were necessary to every cow during the winter season.

Dr. C. A. Greene said a variety of food is required by cattle as much as by men. Lay different foods before cows and they will select a variety. They get tired of grass and of hay. They are fond of beets and carrots and will eat them as greedily as any thing you can give them.

H. M. Engle discussed the root question as food for stock at considerable length. Gave his experience in it and related many interesting facts derived from his own observation. He is an earnest advocate of root-food. He spoke in favor of growing the sugar beet in this county and hoped the time was near when they would be grown so largely here as to warrant the establishment of a sugar beet factory.

Does it Pay to Cut Fodder for Stock?

W. H. Brosius answered this question affirmatively. He has practiced it for some years and with the best results. Meal when mixed with rough or bulky food, does much better than when fed by itself. He gave it as his decided opinion that it was to the farmer's benefit in every way to cut fodder for cattle.

Henry Kurtz also gave testimony in favor of cutting cornfodder for cattle. He practiced it, and always with most favorable results. Besides, you have less trouble in putting out your manure, as well as in cleaning your stables.

Harry G. Rush is satisfied that chaff is as good as cornfodder, and is already prepared for use. To cut all the cornfodder is no little trouble and no trifling expense. To cut our fodder is as much expense as to harvest your corn crop. He has used chaff two years, and has had all the results he could have had from cut fodder.

Wm. McComsey was satisfied from his own experience and observation that one ton of cut fodder was equal to two tons in its natural state. Fodder contains more nutriment than is believed.

J. C. Linville said cut fodder will go much further if cut very small—the smaller the better.

Harry G. Rush asked if corn stalks have as much nutriment as the leaves, why the cattle prefer the latter? He was told the woody fibre in the stalk was objectionable to cattle if given to them.

Miscellaneous Business.

John H. Landis presented to the society the agricultural reports of the States of New Jersey, New York, Missouri, Massachusetts, Michigan and Indiana.

A vote of thanks was given him for the same.

A committee of three was appointed to audit the accounts of the late treasurer of the society. Levi W. Groff, E. S. Hoover, F. R. Diffenderffer and Wm. McComsey were named as the committee.

A motion was made and carried to appoint a committee of three, with Dr. S. S. Rathvon as Chairman, to express the sense of this society on the death of our late member, J. Stauffer. The other members of the committee were S. P. Eby, esq., and H. M. Engle, and they reported the following:

WHEREAS, It has pleased God to remove from the material plane of life our late fellow member, Mr. Jacob Stauffer—for many years the botanist and chemist of this society—and whose removal is an irreparable loss, not only to this society, his family, and this county, but also to the State of Pennsylvania at large; therefore,

Resolved, That in the death of Mr. Stauffer, agriculture, horticulture, botany, and their correlative occupations, as well as the community in general, are deprived of the services of an efficient and cheerful colaborer, a friend of social progress, and a symyathizer in all that relates to human welfare.

Resolved, That while we submit with human resignation to the wisdom of *Him*, "in whom we live and move and have our being," yet in human weakness we cannot but feel regret that the social relations between us and our departed member have been so suddenly severed, and that on this earth we shall meet him no more.

Resolved, That in the removal of Mr. Stauffer this society has lost a distinguished patron, the community a useful fellow-citizen, science an industrious and patient co-laborer, and his family a kind parent and friend.

Resolved, That we are in unfeigned sympathy with all those sentiments of bereavement which have been so feelingly expressed by the community and other associations to which our late fellow-member belonged.

Resolved, That we condole with his family and friends, but not as "those who mourn without hope;" that these sentiments be recorded in the proceedings of the society, an that copies be sent to the members of the family.

S. S. RATHVON,
H. M. ENGLE,
S. P. EBY.

J. F. Witmer called attention to the fact that the Board of Managers have the entire control of the matters pertaining to the coming fair. They are unwilling to assume all these labors. He thought all the officers of the society should be united with them. There would then be a more equal division of responsibility and labor.

J. C. Linville made a motion that article 13 of the by-laws be so amended as to include all the officers of the society among the Board of Managers.

The amendment was read and, under the rule, lies over until the next meeting for action.

Questions for Discussion.

Should potatoes be cut into small pieces for planting? Referred to H. M. Engle.

Should large or small potatoes be selected to seed? Referred to Wm. McComsey.

Which is preferable, hill planting or drilling corn? Referred to H. G. Rush.

What per cent. of tobacco should be cultivated by our farmers? Referred to Henry Kurtz.

There being no further business before the society a motion to adjourn was adopted.

POULTRY ASSOCIATION.

The Lancaster County Poultry Association met statedly Monday morning, April 5, at 10½ o'clock in their rooms.

The meeting was called to order by the newly elected President, S. N. Warfel, who upon taking the chair said:

The business of which we meet to consider is as yet in its infancy in this county. It has about it pleasure, and, what is of equal importance, profit. The man who gives to the world a new breed of fowls—awakens for those already in existence a new or a deeper interest—makes the best modes of keeping better understood—and especially, in calling out a love for the beautiful denizens of the farm yard, calls it away from things that degrade and belittle—has pleasure which others never dream of. The profits to be derived from the business of breeding improved poultry must be the subject of a special paper. Suffice it for the present merely to say, that I believe $500 a year is not a wide estimate of what may be realized on a hennery of fifty fowls judiciously managed.

But I must not detain you longer at this time. Gentlemen, I heartily thank you for the compliment you have paid me in your choice of chairman. I cannot take this seat vacated by your former respected President without feeling almost as if I were stealing a position which belongs to another. Had I co-operated more earnestly in the organization of this society, I should have less compunction in now accepting the Presidency. But coming as I did after that had proved a success which was regarded by many as but a doubtful experiment, I cannot avoid the conclusion that this honor which you have conferred upon me is more to be credited to your goodness than any merit of my own. I can, therefore, only show my appreciation of your kindness by endeavoring to serve you in the most faithful and impartial manner.

Members Present.

The following members responded to the roll call: S. N. Warfel, Strasburg, President; Frank Greist, city; W. L. Hershey, Kapho; F. R. Diffenderffer, city; Henry Wissler, Columbia; Dr. Bernheisel, Columbia; H. H. Tshudy, Lititz; J. B. Lichty, city; C. A. Gast, city; Ferdinand Shaeffer, city; W. H. Bollinger, Warwick; J. B. Long, city; Chas. E. Long, city; John M. Hagans, Strasburg; Obadiah Kendig, Lancaster.

The minutes were read by the secretary, and on motion approved.

Election of New Members.

John B. Eshleman, of West Hempfield, and D. D. Courtney, of Elizabethtown, were nominated to membership and unanimously elected.

Secretary Lichty asked to be furnished with a book of certificates, to be issued to members. The society granted the asked for permission.

Discussions.

Is there any way to reduce the flying propensities of Leghorns?

H. H. Tshudy keeps Leghorns but has no trouble in keeping them in an enclosure with a low fence. He clips one wing on each bird.

Dr. Bernheisel said you can prevent hens from flying by clipping their wings, but you can't break down the propensity of birds to fly.

J. B. Lichty said tailless cats had been produced by cutting off their tails for many generations. Can we not do the same thing by removing the quill feathers for a series of years. There are ways of pinioning the wings which will prevent them from flying.

F. R. Diffenderffer suggested the removal of the outer wing joint. He found it very successful when used on wild ducks and geese, although the latter retained their propensity to migrate when the season to do so came around, in the spring and fall.

President Warfel related the case of a man who has Golden Pheasants which have the wing cut off at the first joint, which prevents them from flying.

J. B. Long thought kindness may do somewhat to prevent Leghorns from flying, but the only effective remedies were to cut off their wing feathers or their heads, either of which will bring the answer.

J. B. Lichty thought there was some connection with the wonderful laying qualities of Leghorns and their great activity. They are always in motion, always on the alert and this may have some effect on their egg producing capacity.

Reports on this Spring's Success.

J. B. Lichty reported having had fair success in hatching out birds this spring.

H. Wissler reported excellent luck so far.

Dr. Berntheisel said he had been experimenting with the age of eggs for incubating purposes. He put 11 eggs under a hen, 6 of which were 29 days old, and he got out 10 chicks in all; he is therefore persuaded that eggs will hatch out when much older than people generally concede.

Report of Auditing Committee.

The Committee on Accounts reported through J. B. Long that they had audited the Secretary and Treasurer's accounts and found them correct.

Their report was accepted and the committee discharged.

Miscellaneous.

The Secretary asked whether it would not be well to notify members of the day of meeting. He thought we could secure a much larger attendance in this way.

On motion he was authorized to notify the members by postal card of the time for the next meeting.

On motion of Frank Greist an article published in the *Germantown Telegraph* about the care of chickens was referred to Rev. D. C. Tobias for discussion.

There being no further business the society adjourned.

FULTON FARMERS' CLUB.

The March meeting of the club was held at the residence of Montillion Brown, March 6th. Day Wood exhibited the following statement of an experiment in hog feeding:

Four hogs fed 112 days; live weight at commencement was 120 pounds each, equal to 100 pounds dead weight. When killed they dressed 1,469 pounds, equal to 367 pounds each. Seventy bushels of corn were fed—first forty bushels whole, and then last thirty bushels ground. The average daily gain of each was about 2^1_3 pounds. Amount of pork made per bushel of corn, 15 2-7 pounds. Pork sold in Lancaster at 6^1_4 cents per pound, and the total gain of pork being 1,069 pounds, at 6^1_4 cents, amounted to $66.81, thus making the price of corn fed 95 cents per bushel. The hogs were full-bred Poland China and eleven months old when killed.

Wm. King asked if there was any great advantage in feeding hogs ground corn.

Day Wood said he was satisfied that the thirty bushels of ground corn had made more than half of the gain in his hogs, but he had not tested the matter by weighing his hogs when he changed the feed. There was less waste in ground corn, and it would pay to grind fine.

Most of the other members fed whole grain, although several of them believed that hogs would gain faster on meal. Edwin Stubbs, a visitor, had soaked corn for his hogs last year, and had never had them to do so well before.

Montillion Brown: Would it be safe to put salt or pickle on quince trees? Joseph Geist knew of trees where it is put on every spring. They bear nice quinces. Several others had been in the habit of salting their quince trees. Some of them had received no benefit from it.

Solomon L. Gregg: Has any one present tried Howell's Prepared Chemicals as a fertilizer, and what is the result? No one had tried them.

After treating the club and visitors to a good substantial dinner the host showed some fine young cattle of his own raising, and a pen of good Chester White hogs. When again convened in the house, criticisms on the farming operations being in order, the live stock above mentioned received due notice; but some of the fences were found to be in a very bad condition. The host explained that it was his intention to remove the old fence altogether, and replace it with a new post and rail.

An essay was then read by M. Brown, criticising an article that appeared in THE LANCASTER FARMER, copied from the Maine *Farmer*. The article in question stated that the farmers of England and Scotland paid from $11 to $15 per acre rent for their farms and made money and lived at their ease; while American farmers, even when they owned the land and had it well stocked, complained of hard times.

Grace A. King read a poem from *Scattered Seed*, entitled "The Grant Excitement." Carrie Blackburn recited "Going West." Ella Brown recited "The Grave of Thaddeus Stevens."

The question, "Would co-operative farming pay in this community?" then came up for consideration. The general opinion of the club was that in dairying and some other things co-operation would be beneficial, but in most kinds of work it would not prove satisfactory.

Joseph Griest and wife were now elected members of the club.

The following officers were elected for the ensuing year: President, Day Wood; Secretary, E. H. Haines; Treasurer, Joseph Greist: Librarian, Wm. P. Haines.

The club then adjourned to meet at the residence of S. L. Gregg, Drumore township, on the 10th of April.

THE LINNÆAN'S TRIBUTE.

The Society's Respect to the Late Jacob Stauffer.

The Linnæan society met in the hall of the Y. M. C. A., on Saturday 21 ult., Presi't Stahr in the chair. Dr. S. S. Rathvon moved that the routine of business be dispensed with in order to allow an opportunity to offer the following testimonials of respect to the memory of their late departed fellow-member which was adopted.

MR. PRESIDENT: Mine beemes the sorrowful duty to-day of announcing officially to the Linnæan Society the death of Jacob Stauffer, our distinguished fellow-member and honored secretary. He died at his late residence, in East Orange street, Lancaster city, on Monday evening, March 22, at about eight o'clock, in the 72nd year of his age. Naturally possessing a reasonably strong constitution, yet he had been for so many years afflicted with chronic bronchial inflammation and spasmodic coughing, that those nearest, dearest, and most intimately associated with him must have noticed the inroads which these exhausting afflictions were making upon his physical health, and that they must have ultimately terminated in death. But now, that through the *permissions* of divine Providence he has been removed from this earthly stage, his removal seems sudden; and, under the impulses of natural affection and social affiliation, we cannot but lament his "taking off," however humbly we may endeavor to yield a Christian resignation to the will and wisdom of Him who has seen fit to call him to a higher sphere of being.

Mr. Stauffer was one of the original founders of the Linnæan Society, in February, 1862, and of its incorporators in 1864.

For eighteen consecutive years he faithfully served as its Recording Secretary, chairman of the committees on Icthyology and Herpetology, and also as associate member of other committees, especially that of Botany. In all the duties relating to these several functions he was an industrious, cheerful, and efficient worker; often manifesting a disinterested and youthful zeal, and nothing seemed to limit his efforts save physical disability. In the specialties of icthyology and ophidiology his loss to this society is irreparable. Our departed friend enjoyed a literary and scientific reputation that was not confined to the limits of this association, extending, as it did, beyond the borders of our county and our State, and the records of these labors of love may be found upon the pages of many of the publications of our country. We confine our estimate of his character on this occasion, however, mainly to his relations to the Linnæan Society—an organization for which he always manifested the deepest interest, notwithstanding the many discouragements by which it has been surrounded, and during his long connection with it he was seldom absent from his post of duty.

To him who bears this imperfect testimony—who had known him so intimately and so long—he seemed like "another self;" and the uniform and practical kindness which he always exhibited, his fraternal sympathies, his purity of life, and the general integrity of his private character, were such as to elicit the highest esteem.

He was always ready by purse or pen to advance the cause of literature and science, not forgetting his duties as a Christian and a father; and from this standpoint, looking over his career as a member of the Linnæan Society—its early scientific excursions, its field meetings, its spring and summer explorations, in which he was a conspicuous figure—we only irritate our unhealed wounds of regret that on this earth we shall see him "nevermore."

Of course Mr. Stauffer was liable to those frailties which are common to the very best specimens of humanity, and none were more sensible of this than himself. His physical energies were never quite able to ultimate the aspirations of his will, or to free him from the limitations of circumstance.

Had he possessed less versatility of talent, he probably might have been enabled to accomplish more in any specific direction, but like all votaries of science who are compelled to "eat their bread by the sweat of their face," he could only avail himself of the means which he found within his reach; moreover, differently endowed, he would not have been able to satisfy the great diversity of demands almost constantly made upon his time and talents.

He was constantly at work in many directions, and literally "died in harness." Less than five hours before his spirit fled an article appeared in the columns of the Lancaster *Intelligencer* on a new fish discovered in the Susquehanna river, which, there is reason to believe, was written on the Saturday preceding the day on which he died, in which no abatement of his usual mental vigor is apparent.

Perhaps it could not be truthfully said that Mr. Stauffer never had an enemy; indeed, there are those, whose opinions are entitled to the highest respect, who allege that it may be nothing to a man's credit to pass through an active life in this world without exciting the enmity of *some one;* especially since the highest moral and spiritual exampler ever vouchsafed to the human family was not without his enemies, and those, too, of the most bitter and malignant character. And this need not be at all surprising when we reflect that the "carnal mind" itself is always at enmity with everything that is good and true. According to his own apprehension of his characteristic traits, he inherited a sanguine temperament, and fully an average share of combativeness. But during his maturer years the impulses controlling these faculties were happily held in subordination to his moral and religious sentiments; hence, all who truly knew him and could appreciate his his motives, it may be safe to say, were numbered among hts friends.

He was just and generous, and would have suffered himself rather than to have imposed suffering on another, and if he erred in the exercise of these, that error leaned towards humanity.

His church has born its testimony in relation to his character as a Christian; the community has spoken in reference to his status as a fellow-citizen, and his scientific labors have long been recognized and recorded. His philosophical deductions were always antagonistic to those speculations which, under the name of progress, leaned towards infidelity, or militated against the authenticity of scripture and man's moral accountability. We pass no empty compliment to his worth when we say it will be a long time before we shall look upon his like again; for there is not a place made vacant by his removal that will not almost irretrievably miss him. Believing these sentiments to be in entire accord with the sentiment of this society, they are submitted as an humble tribute to the memory of a faithful and self-sacrificing fellow-member, and a manifestation of sympathy and condolence with his bereaved family, the community, and our association, in the great loss which we all have sustained. Therefore, *Resolved*, That this tribute be filed in the archives of the society, that all further business to-day be suspended, that committees be continued, and that out of respect to the memory of our departed fellow-member, we do now adjourn until the next stated meeting.

Unanimously adopted and ordered to be printed. Remarks were also made by Dr. J. H. Stubbs and Rev. Prof. Stahr.

ENTOMOLOGICAL.

Flowers and Insects.

Sprengel, the German botanist, appears to have been the first to perceive the intimate relations which exist between plants and insects. In the year 1787 he observed on the corolla of the *Geranium sylvaticum* a number of delicate hairs. He endeavored to ascertain the use of these hairs, and concluded that they served to protect the honey from rain. But why should the honey be protected? What service were the insects to the flower that it should nourish them? Sprengel was thus led to make numerous examinations, and was surprised to find how many of the peculiarities of flowers could be explained by their relations to insects. The importance of the visits of insects to plants is in the fact that they transfer the pollen from the stamens to the pistil. In many plants the stamens and pistil are in different flowers, and even in those in which the stamens and pistil are found together they are so placed, that self-fertilization is difficult or impossible. Again, self-fertilization is sometimes rendered impossible by the fact of the stamens and pistils not maturing at the same time. The pollen is then transferred in different ways from the stamens to the pistils. In some cases the pollen is carried by the wind; in a few cases by birds, but mostly by insects. Sprengel, though he saw that "Nature does not wish that any complete flower should be fertilized by its own pollen," did not perceive that to transfer this pollen was the office of insects. He saw that stamens and pistils did not mature together, but supposed that the visit of the insect was to transfer the pollen from the stamen to the pistil of the same flower. If this had been the whole use of insects, the contrivance would appear to be a very elaborate and unnecessary one. It was strange that two sets of arrangements, one to effect and one to preclude self-fertilization, should exist in the same flower. What a roundabout contrivance it was by which honey was put in the flower to attract the insect to transfer the pollen from the stamens to the pistil, when a slight change in the structure of the flower might have produced the same result! The visits of insects are really useful because it is intended that the petal of one flower shall be fertilized by the pollen of another. The principle first pointed out by Darwin is now well established, that if a flower be fertilized by pollen from a different plant the seedlings so produced are much stronger than if the plant be fertilized by its own pollen. Six crossed and six self-fertilized seeds of *Ipomœa purpurea* were grown in pairs on opposite sides of the same pot. The former reached a height of seven feet, while the latter reached an average of five feet four inches. The former also grew the more profusely.

Sir John Lubbock has treated this subject in an attractive and lucid manner in a little book, just

issued by McMillan & Co., N. Y., on "British Wild Flowers in Relation to Insects." Not only does he point out the necessity of insects to the existence of flowers, but he shows that flowers and insects modify and change each other. Especially do flowers undergo changes from the influence of insects. Insects are attracted by colors, perfume and honey. If it be an advantage to flowers to be visited by insects it is evident that those flowers which are the brightest, sweetest in perfume and fullest of honey, will be most visited, will thrive the most and will be most likely to perpetuate themselves. Insects are thus the agents of a constant natural selection among flowers. Sir John Lubbock himself experimented upon the attractions of colors for insects. He placed slips of glass with honey on paper of various colors, accustoming different bees to visit special colors, and when they had made a few visits to honey on paper of a particular color, he found that if the papers were transposed the bees followed the color. This and kindred topics are pursued through the volume with much diversity of anecdote.

Destroyers of Carpets.

The season is at hand in which many careful housewives will be dismayed at the wholesale destruction which their best carpets have suffered, through the depredations of some insect pest, and as usual the injury will be attributed to the well-known domestic scourge, the clothes moth, *tinea tepetzella*. But it may be of interest to some to know that an insect of quite a different order, and far more destructive, is fostered unwittingly beneath our carpets. If the windows of infested rooms be carefully examined during the winter and spring, a number of small beetles may often be found not exceeding one-eighth of an inch in length, and of an oval convex form. These insects are beautiful little objects, being jet black, variegated with scarlet and white markings. If examined through a low power microscope these markings are seen to be composed of minute elongated scales of various colors, with which the body is completely covered as with a coat-of-mail. This is the insect which in the larval state plays such havoc with the carpets, and is known to entomologists under the name of *anthrenus scrophulariae*. Its discovery in this country is of recent date, and it has probably been imported from Europe, where it has long been known and dreaded for its destructiveness. Owners of carpets who have not suffered from this source have reason to congratulate themselves and should be vigilant, making frequent examinations during the summer months, at which time the insect is in the larval state, and commits its ravages while its presence is often unsuspected. The larvæ measure about three-sixteenths of an inch in length in mature specimens, and are clothed with short bristly hairs somewhat longer at the sides where they form small tufts, and are terminated at the hinder end by a tuft of longer hair, making them appear nearly three-eighths of an inch long. When they are disturbed they are active and glide very quickly away into some crevice of the floor or beneath the washboard. It is not very consoling to know that this pest is rapidly increasing, while no effectual means for its destruction has yet been discovered, although benzine, kerosene oil and insect powder have been reported beneficial. A curious fact concerning these insects is that the imago, or perfect insect, is frequently found on flowers, apparently feeding on the pollen. A friend recently gave me a number of specimens which he had taken on the tulip, while I have frequently found them abundant on the flowers of the *spirea alba*.

The Chinchbug.

The following synopsis of a report on the chinchbug by Dr. Cyrus Thomas, president of the Illinois University, and member of the United States entomological commission, which has just been prepared, gives its history, characters and habits, and the means of destroying it or counteracting its injuries. He says the chinchbug (*Blissus eucopterous say*) is unquestionably the most formidable insect pest with which the farmers within the wheat-producing area of the United States have to contend.

The locusts of the West are the only creatures of this class whose multiplication causes more sweeping destruction than that of this diminutive and seemingly insignificant insect. The loss from this insect in Illinois alone in 1850 was estimated at $4,000,000, an average of $4.70 to every man, woman and child then living in the state. It attained the maximum of its development in the summer of 1864, in the extensive wheat and corn fields of the valley of the Mississippi, and in that single year three-fourths of the wheat and one-half of the corn crops were destroyed throughout many extensive districts, comprising almost the entire Northwest, with an estimated loss of more than $100,000,000 in currency. The course of their severest ravages is in a belt in Illinois on about a line with the junction of Iowa and Missouri, and taking in a corresponding part of Southern Iowa and Nebraska and of Northern Missouri and Kansas. The loss by chinchbugs in the state of Illinois in 1871 was upward of $10,500,000, taking an equal amount in Iowa and Missouri, and again an equal amount in Indiana, Kansas, Nebraska and Wisconsin, the loss in these states alone from this one species of insect was upward of $30,000,000.

As the species appear to have a maximum of development about every five years, the foregoing estimates, Mr. Thomas thinks, render it probable, that the annual loss to the nation by its operations averages $20,000,000. The insect first appeared in Illinois in 1840, in Iowa in 1847, in Indiana and Wisconsin in 1854, and in 1861 over the entire Northwest. Of natural agencies which assist in their destruction, Dr. Thomas says that the chinchbug has no such relentless enemies as those that pursue the army worm, plant lice, etc. There are a few insects that prey upon them, but not sufficiently numerous to make any material impression on the vast hordes of these invaders of our grain fields. The most efficient of these aids mentioned is the *berpactor cinctus*, or banded bug, and the frog. Professor Ross expresses the belief that the destruction of the frog by draining their natural haunts is one reason why the chinchbug multiplies as rapidly as it does in some sections, and Dr. Fitch is mentioned as suggesting the idea of sprinkling. The artificial remedies given by Dr. LeBaron, state entomologist of Illinois and quoted by Dr. Thomas, are:

1. The plan of sowing grain so early in the spring as to get in advance of their depredations.

2. The attempt to save a part of the crop by preventing the migrations of the bugs from one field to another by furrows or kerosene oil.

3. The method of destroying the insects by burning cornstalks and other rubbish in which they are supposed to hibernate.

4. The prevention of their breeding to any serious extent by abstaining from the cultivation of those grains upon which they chiefly subsist.

Dr. Thomas suggests burning over the infected fields in the winter as the best means of destroying them. Rolling he also suggests. Dr. Thomas concludes by saying that clean farming is the best under all circumstances, and if adopted as a rule will tend largely toward preventing the increase not only of chinchbugs, but of all other injurious insects. He also believes in diversified farming. Massing crops in immense bodies, and cultivating the same thing year after year, tend to increase the insects that feed on these crops.

Entomological Notes.

SMALL BORER IN APPLE TWIG.

Editors Rural World: Enclosed you will find an apple twig, perforated with some kind of borer, whose habits seem to be like those of the flat-headed (working under the bark, and then boring into the wood.) It is new to me. The twig was handed me by a gentleman for examination. The larvæ is unlike the flat-head (*Chryso bothris femorata*) being round and plump. Anything you can send to enlighten me will be thankfully received.—*Frank Holsinger, Kansas City, Jan. 17, '76.*

The small larvæ are those of a long-horn beetle (*Iperyocerus supernotatus*,) of a cinnamon-brown color, with darker shading on the wing covers, and transverse white lines. It is generally supposed to attack by preference trees that are injured or dying, and it would be interesting to know if such is the case in your instance. The species was recently referred to in the *Rural*:

The beetle deposits its eggs upon the twigs early in June, and the young, as soon as hatched, bore their way into and commence feeding on the under side of the bark and sap wood, gradually making their way to the pith, which they bore in the direction of the axis for the space of an inch and a-half or two inches, filling the cavity with their powdery excrement. They complete their growth by the end of summer, but hibernate in the larvæ state. Early in the following spring they change to pupæ, and in May the perfect insects appear.

WORMS ON COTTONWOOD.

Editors Rural World: Please find enclosed a phial, with a worm inside. If you are entomologist enough to name it and define its species through the columns of the *Rural*, it will be of interest to many of its readers. The subscribers of the *Western Rural* frequently do this. We find them numerous on our cottonwoods.—*J. H. Davidson, Burr Oak, Otoe county, Neb.*

The worm had changed to chrysalis on the way, and as it was impossible to determine the specie without further specimens, we kept it and endeavored to hasten its development. We recently (January, 15th) reared the moth, and it turns out to be one of the commonest species in the country, and one of the earliest flyers in spring, viz: *Drasteria erechtea*. It has no common name, but may be distinguished by its broad gray wings, with brown shades across them, the shades margined with pale narrow lines, and there being two small but very distinct spots near the apex of the front wings. This worm has been known to feed on clover, but has never before been reported on cottonwood.

AILANTHUS SILKWORM IN MISSOURI.

Editors Rural World: I would like to ask a question or two through your valuable paper, which I would like to have answered either by yourself or some of your numerous readers who have had experience. I want to know whether the ailanthus silkworm is grown in Missouri, with what success, and where I can get a supply of plants and worms, and their probable cost.—*Subscriber.*

The ailanthus silkworm (*Samia cynthia*, Hubn.) has never, to our knowledge, been grown in Missouri, except in small numbers, as a mere curiosity.

The insect is of Chinese origin, and in its native country a very durable fabric is manufactured from its cocoons. Experiments that have been made with it in France and England, however, have convinced silk growers that at present it can not compete with the mulberry silkworm (*Bombyx mori.*) This is owing to the difficulty attending the reeling of the silk, and the interior quality of the latter when wound.

The ailanthus silkworm was introduced into this country in 1861, at Philadelphia, and, adapting itself readily to the climate, has already so multiplied in several of our eastern cities, as to become a serious nuisance.

AGRICULTURE.

Agricultural Items.

To find the number of tons of hay in long or square stacks, the following is given as a rule: Multiply the length in yards by the width in yards, and divide the product by 15. To find the number of tons in circular stacks: Multiply the square of the circumference in yards by four times the altitude in yards, and divide by 100. The quotient will be the number of cubic yards in the stack. Then divide by 15 to get the number of tons.

The *Country Gentleman* says that James Wood, of Westchester county, New York, raised three thousand bushels of turnips on four acres of land—between seven and eight hundred bushels to the acre. This is assuredly a great yield, but it was beaten in the county of Philadelphia, on the farm of Mr. Isaac Pearson, some twenty years ago, as he himself informed us, the yield being nearly nine hundred bushels per acre. The variety was Landreth's Purple-Top.

Thousands of tons of Limburger cheese are produced every season, mostly in the States of New York and Wisconsin, at a cost of less than half that of the imported article. It finds its market among and is consumed mostly by our German-American population. It is more profitable to the farmer and maker than any other kind of cheese, because from a given quantity of milk more weight is obtained, and better prices are realized.

The *Prairie Farmer* considers Minnesota the most certain State in the Union for raising wheat, especially the spring variety, owing to the peculiar climate and quality of the land. Last year the yield of the whole State was twenty-eight million bushels. It is mostly ground and sent away as flour. The milling business in Minnesota is one of colossal proportions.

As there is much controversy in the agricultural papers at present as to how to make and save manure, I will give my plan in as few words as possible. First, I keep my horses and cows in the same stable; I bed the horses well with good wheat or oats straw, and when they have stood in it one night, I clean all the straw and manure out of the stall and put it under the cows. By doing this I save straw, and it makes the manure finer. The horse manure is always dry, and by putting it under the cows it absorbs all the urine, and it also keeps the horse manure from burning when thrown into the heap. When the manure gets well warmed in a heap, I take a long-handled manure fork and turn it over, and by that time it is well mixed and ready for the land. If any of your correspondents have any better way, let us hear from them.—*Cor. Germantown Telegraph.*

The Grain Blockade.

The Chicago *Times* has the following remarks in the course of an editorial: The grain blockade attracts attention simply from the fact that the elevators are filled. We have a constant glut in other lines of trade, wherein the accumulation is proportionately as great as in the grain trade. The amount of provisions in store here now is enormous, but the fact that we have nearly 300,000 barrels of pork in store at this moment, and meats and other provisions in proportion, does not excite any alarm, because there is plenty of room for it.

Our lumber stock is almost as largely in excess of the normal supply perhaps as our grain stock, but there is no occasion for alarm, since we have "all out doors" to store it in. What we need to permanently relieve the situation is a greatly increased warehouse capacity, and this, fortunately, we are likely to get in some measure. This year elevators are to be built which will add a capacity for holding 5,000,000 bushels more, and make our total capacity about 22,000,000 bushels.

But the factors at work this season are likely to be at work another season. If we are carrying 16,000,000 bushels this year, there is no reason why we should not be carrying 25,000,000 bushels next year. An increased warehouse capacity—much greater than that now contemplated—should therefore be added as soon as possible. Our capitalists, who have money to invest in this kind of property, should bear in mind that we are becoming more and more a holding market, and that the facilities for storing grain must be increased to keep pace with this tendency.

Not long ago we were the transfer point and the seaboard cities the holding points. Now the situation has been exactly reversed; and it is not likely that the old state of affairs will ever be restored. Instead of regarding the grain blockade as a calamity, and grumbling about it, we should consider it as a sign of our sure progress toward supremacy over all American cities.

HORTICULTURE.

The Best Location for Fruit Trees.

This question has often come up for discussion, and as is usual on all questions of the kind, there is a considerable diversity of opinion. We have our own and have frequently expressed it. For a peach, pear or apple orchard we should select a *northern exposure* in otder that the swelling of the buds and their blooming might be as long delayed as possible and thus pass over the period of probable frost unharmed. Take the present season, for instance, and mark the condition of the buds to-day, and what must be the consequence of a severe freeze in the latter part of this month or the forepart of next month? And that we shall have it before long, on account of the almost unparalleled mild winter and spring up to this writing, may be looked for with almost absolute certainty. It is the late springs on which we must depend for our best crops of fruits of the larger kinds; but when the season is not too backward or forward, a northern exposure to retard the blooming is to be preferred for orchards.

We have an old friend in Montgomery county—the late Judge Longstreth, than whom there was no better citizen in the county—who was nearly always successful in raising peaches, having an orchard of about one hundred trees, and who told us that his practice was when a snow fell in the latter part of January or in February, to pile it around the stems of the trees to the depth of a foot or more, well-tramped down. This retarded the blooming for a full month later, so that in nearly all cases his crop was uninjured by late frosts, as is so often done in Delaware, Maryland and elsewhere.

But, in connection with the raising of pears and cherries, the results are so variable and singular as to be difficult to understand them or to adopt a remedy. A plan that will do well in one part of a premises will fail in another part, though they may be only a hundred yards apart. Then, too, while lime, salt or a fertilizer may prove a remedy for cracking, falling prematurely off, or failing to ripen, in one case, in the other it will have no effect at all.

With cherries it is worse. One never knows when there will be a crop. A tree may be covered with blossoms, you watch it carefully, and you see nothing to interfere with an overloaded tree of fruit. There is no storm, hail or rain at the time of inflorescence, the latter of which is especially injurious at this delicate period, and yet there is no fruit. They will grow freely until half the full size, when they suddenly—sometimes in a single day—turn black and fall to the ground. The tree itself, too, without giving any indication, will suddenly curl up its leaves and die. Some years ago we had six trees, over twenty years old, which bore full crops nearly every year, but they died within a few weeks of each other one fall. They were of different varieties, embracing Mayduke, Black Eagle, Black Tartarian, Florence, Downton and Governor Wood. They stood in cultivated ground, not over thirty feet apart. Grass, we are very well satisfied, is the best for pears or cherries.

The Best Fruit to Plant.

Friends who have but small yards of garden often ask what is the best tree to plant where only one or so can have room to grow. Now, in a general way there is no doubt but the apple is the king of fruits; but limited to one or two trees we shall give the preference to a pear. The apple has such a close-spreading head that nothing will grow well under it. Everything must be given up to it; neither grass nor flowering shrubs will grow. But the pear has rather an upright growth, which does not shade everything about it; and the roots run deep, so that often things can grow almost up to its very trunk, and this gives it a great advantage over the apple tree. Besides all this, it is measurably free from diseases when growing in these confined localities. We do not think we ever heard of a case of fire-blight in a pear tree in a city yard; and it is well known that so far as the disease which results in cracked fruit is concerned, it is so little known in city yards that the old butter pear will often bear good fruit, under such circumstances, when it will do so nowhere else.

Then in regard to the certainty of producing a crop, there is no fruit like it, at least in Pennsylvania. Peaches, apples, cherries, all may fail; but when a pear once comes in, it is tolerably sure to have more or less fruit every year.

We should plant a pear by all means if limited to a small space of ground. And yet in some respects the cherry is not far behind it; and especially in that good point which allows crops to grow close to the trunk without much objection. One of the most successful cherry-growers we have in this State grows clover between the trees, and he insists that he has quite as good a crop about the tree-trunks as anywhere else. Be this as it may, we do know that the deep roots of the cherry do not interfere near as much with things growing on the surface of the ground under the branches as many other things do. It is also a tolerably regular bearer, though the curculio, and in some cases birds, are troublesome. In the matter of diseases, also, the knot is often formidable. The pie cherries, however, are less troubled by the curculio, though perhaps more liable to suffer from the knot trouble. The sweet cherries grow very rapidly as a general rule, and in this respect are often chosen where a little shade as well as some fruit are desirable combinations in a single tree. On the whole, we prefer the pear, though for a little change and for some other reasons one can have a cherry if desirable.—*Germantown Telegraph.*

Selecting Seed Potatoes.

Those farmers who have no settled practice of selecting their seed potatoes would do well to consider carefully whether the same rule which governs the selection of seed corn will not apply equally as well to potatoes. We have no doubt that it will, and therefore advise that the larger-sized tubers, such as are used for the table, be selected for seed, and that a very economical way of doing so is, when selecting such for the table, to cut each one horizontally in two, reserving the smaller half, or that containing the crown end, for seed, and using the other or larger half for culinary purposes—the smaller-sized tubers to be fed the cows, or boiled and mixed with meal for the pigs. Before planting, however, these crown halves should be cut lengthwise in two, and rolled in plaster, the better to prevent their drying. To test the difference in product between whole and cut potatoes, the most careful experiments were recently instituted in Germany, where it was found that an acre of ground planted with tubers cut in half lengthwise produced five tons, another acre planted with whole tubers produced seven and a half tons, while from an acre of ground planted with the crown half of tubers cut lengthwise in two the yield was nine and a half tons. Other experiments but confirmed these results, while there was no evidence of any well-ordered experiments showing the contrary. Repeated trials also demonstrated the fact that the largest potatoes yielded the largest potatoes in return. There are two reasons for this: one, that it is in accordance with a uniform law of nature that like will produce like, and the other that the nutriment afforded the embryo potato is in proportion to the size of the parent tuber. It is all a mistake, therefore, to suppose that all that is necessary to insure its full yield is to plant the eye of the potato, without reference to the amount of nutriment it receives from the tuber containing it.

DOMESTIC ECONOMY.

What Every House Needs.

One of the worst faults of our very faulty modern architecture, as applied to houses, is found in the fact that architects do not take into their plans the possibilities of sickness in the family. No house is properly constructed that has not in it a room or rooms expressly designed for the accommodation of the sick and the infirm. This room should have a very warm, sunny exposure. The window-light should be ample, and command the widest possible view. The next essential is a good, liberal fireplace. By the warmth which it generates, and facilities for ventilation, the whole room is kept wholesome and pure. Not only so, but a slowly burning fire, with its lights and shades, its rising sparks and glowing brands, its curling and many colored smoke, and its changed embers, furnishes careless diversion to the sick one who lies watching it. Nothing is more soothing and quieting than the influence which subtly steals over the senses of one who gazes dreamily into the genial flame. It is companionship itself. The walls too, should have their proper adornments. Pictures that suggest quiet and peace, and the free, fresh life of nature outside, should be on them. A bracket with its vases of flowers; a green clambering vine, clinging ambitiously to the ceiling; a library case full of familiar books; curtains that soften the light while admitting it—all these are helpful to one that lies in weakness, and can take no more than the little room reveals. Better still, if just outside the window stands a tree with the branches so placed that the leaves of some almost sweep the pane. How much the sight of twigs, buds, and leaves stirred by the wind and flecked with bright gleams of the sun, can cheer the mind of one who lies up in the pillow idly looking at them! The central thought expressed in a well conducted sickroom is—diversion. The object of its construction and location should be to give perfect accommodation and protection to the invalid, while at the same time it suggests the beauty and the freedom of being unconfined—the life and animation of the great outdoor world beyond.

Have Clean Beds.

It is a false idea of neatness which demands that beds should be made soon after being vacated. Let it be remembered that more than three-fifths of the solids and liquids taken into the stomach should pass off through the pores of the skin—seven millions in number—and that this escape is the most rapid during the night, while warm in bed. At least one-half of the waste and putrid matter (from twenty to thirty ounces in the night), must become more or less tangled in the bedding—of course soiling it—and a part of this may become re-absorbed by the skin, if it is allowed to come in contact with it on the next night, as it must if the bedding is not exposed for a few hours in the air and light. We may well imitate the Dutch example of placing such bedding on two chairs near the window, that the best purifier known—the light of the sun—may dissipate their impurities, or neutralize them. At least three hours on the average is as short exposure as is compatible with neatness. It is also desirable that the air shall pass through open doors and windows, and that as much sunlight be admitted as possible to the room in which about one-third of the time is spent. In addition to these measures, it is well to have the attic windows wholly or partly open, and the doors leading to it, so that a free current may pass through all the rooms, up the stairs, and out into the outer world, to become purified by vegetation, etc., before being again respired. Clothes thus aired and sunned will not demand more than half the usual washing, though they can scarcely be washed too often. Another means of promoting cleanliness is by the absolute change of all clothing morning and night, wearing nothing by night that is worn by day, and *vice versa*. Such clothes are hung to sun by day and dry by night, and such only are fit to be worn by those who have a reasonable regard for personal cleanliness. And I may remark that when such clothes are removed for the change, it is of the utmost importance to the health that the skin should be subjected to a reasonable friction—as by a flesh-brush, a crash, a coarse flannel, or the hand, as a means of cleanliness and of improved circulation.—*J. H. Hanaford.*

HOUSEHOLD RECIPES.

VEAL PIE.—Take some of the middle or serag of a small neck; season it with pepper and salt, and put to it a few pieces of ham or lean bacon. If it be wanted of a high relish, add mace, cayenne and nutmeg to the salt and pepper, and also forcemeat and egg balls.

GRAVIES.—To have gravy always on hand you must do as the French do—namely: Save gristle and every bone left from cold meat or fresh. The bones must be chopped small and put on to stew, with enough water to cover. Leave the fat on until you need to use gravy. By this means it will keep longer.

BEEF LIKE GAME.—Cut some slices of beef in square pieces, put on each a strip of bacon, dredge flour over them, skewer them into a rolled shape; fry them in butter; when brown, add shalots, a slice of lemon peel, a spoonful of capers, two bay-leaves, salt, spice, a wineglass of vinegar, and a glass of wine and a little of water; stew till tender.

SCRAMBLED EGGS WITH DRIED BEEF.—Shave the beef very fine; put a tablespoonful of butter in a frying pan; set it over the fire, and when hot put in the beef; heat a few minutes, stirring constantly to prevent burning; beat up the required number of eggs and stir in with hot beef; stir altogether until the eggs are cooked. Serve immediately.

FRENCH RAREBIT.—Take three ounces of cheese, cut in small square pieces, and set it to fry with a little piece of butter. When your cheese begins to melt, have three eggs beaten up with salt and pepper, pour them upon your cheese. Stir and roll it into a sort of a muff, and take it off. The whole operation should not take more than one or two minutes.

STEWED CHICKEN.—Cut up your chicken pretty fine, wash careful and set on the stove with cold water nearly to cover it; skim carefully as it comes to a boil; cook till tender, and season with salt, pepper, and butter. Have ready some hot biscuits shortened a little, split them open, and lay them in your dish, pour over your meat and gravy, and send to the table.

STEWED BEEF.—Cut thick slices from the tougher portions of beef; lay two or three slices of salt pork in the bottom of your kettle, and fry it till crisp;

take out the pork and lay in your sliced beef; season with salt, pepper, and a little clove; pour in water nearly to cover it, and cook slowly for three or four hours; when tender, take up the beef, thicken the gravy with a little flour wet with water, and pour over your meat.

SAVORY EGGS.—Six or eight eggs boiled hard, and then cut in two; remove the yolks and grind them in a mortar quite smooth, with about a tablespoonful of anchovy sauce (more if necessary), a little cayenne, and a tablespoonful of cream, to make into a paste; pile the mixture roughly in the twelve half-whites, which must have a piece the size of a sixpence cut off at the bottom to make them stand in the dish; garnish with parsley.

SCRAMBLED EGGS WITH CHEESE.—Grate any ordinary sharp cheese, a tablespoonful for every two eggs; put some butter in a frying-pan, and, when melted, throw in the cheese; stir for a minute or two until the cheese melts; add the eggs, pepper and salt, and mix with a fork until cooked. This is a nice side dish at dinner, or may be served at breakfast with fried bacon and baked potatoes.—*The American Poultry Yard.*

SCALLOPED FISH.—Any cold fish, one egg, milk, one large blade of pounded mace, one tablespoonful of flour, one teaspoonful of anchovy sauce, pepper and salt to taste, bread-crumbs, butter. Pick the fish carefully from the bones, and moisten with milk and the egg; add the other ingredients, and place in a deep dish or scallop shells; cover with bread-crumbs, butter the top, and brown before the fire; when quite hot, serve.—*An English Woman, Philadelphia.*

BAKED FISH.—Take a fresh codfish, weighing several pounds, clean very carefully; make a stuffing of bread crumbs moistened with milk and seasoned with pepper, sage, and a little salt pork chopped; stuff the fish, sew it together carefully, and lay in your dripping-pan with a little water; lay thin slices of salt pork on the top, after sprinkling with salt and flour; a good oven will bake it nicely in two hours; add a little flour and butter to the gravy, and serve with the fish.

TO SPICE A ROUND OF CORNED BEEF.—Take a strong twine string and tie it tightly around the round to keep it in good shape; then stick it well on both sides with cloves, squeezing them in as far as possible; rub it also well with three tablespoonfuls of pounded saltpetre, and then with plenty of fine salt. Lay it in a large wooden tray or round vessel that is tight, and every other day turn it and rub well into it the brine which makes from it. In ten days if properly attended to it will be fit for use.

EGG SOUP.—Put two large teaspoonfuls of lard in a pot; when hot add two of flour and two onions cut up fine; when the flour is brown put as much boiling water in the pot as you desire for soup; add salt and pepper, and let it boil for a short time; break into the soup tureen five or six eggs; beat them up well, then gradually pour in the soup, stirring the egg while doing so. Toast two thin slices of bread, cut them into small squares, fry in butter and pour into the soup. Before sending to table a little vinegar may be added or not, as taste dictates.

SCOTCH OATMEAL CAKES.—Put one pound of oatmeal in a basin. Take one pint of boiling water, with half an ounce of salt butter or lard melted in it. Pour this, boiling, over the meal, stirring it as quickly as possible into a dough, and then turning it out upon a board, upon which roll it until it is as thin as it will allow to hold together. Then stamp it out into the shape of round cakes. Place these first upon a griddle to make them firm, and afterwards toast them before the fire, alternately on each side, till they are quite dry and crisp.

BAKED CALF'S HEAD.—Boil the head until you can pick out all the bones, and keep the water the head is boiled in; take your pieces and lay them in a dish, having cut them small; use some salt, pepper, a little parsley, a grate of nutmeg, a small piece of butter and some dry breadcrumbs, say a teacupful of the latter; moisten it all with some of the water the head has been boiled in, put in a baking-dish, and let it bake half an hour; take the yolks of two eggs and make a sauce with the boiled liquor; make soup of the rest of the liquor.

POTTED BEEF.—Take three pounds of lean beef, rub it with an ounce of saltpetre, let it lie twenty-four hours, then salt it well with common salt, and put it into a pot, covered with water, for three or four days; then take it out and dry with a cloth, after which put with it a quarter of an ounce of pepper and bake it; then drain it from the liquor and pull from it the skin and veins; beat it in a mortar very fine, season with cloves, mace, and, if required, more pepper and salt; mix with rather better than a quarter of a pound of butter, melted; pot it up hard and cover with clarified butter.

BEEF CAKES.—Take the part of beef used for steaks, cut it into pieces, then beat it well in a marble mortar until it is very fine. Take especial pains to free it from all bits of skin and fat; then add to it good beef suet, well chopped and carefully picked, in the proportion of a quarter of a pound of suet to each pound of meat; season to your taste with mace, cloves, nutmeg, white pepper and a little salt, all well pounded, and also lemon-thyme, sweet marjoram and parsley dried and chopped. To these add one good-sized onion finely minced. Blend the whole mass very thoroughly, and make into small cakes and fry them over a brisk fire. If your meat is fresh, and you make it in winter, this will keep good for a fortnight, if pressed closely down in a jar.

MILK ROLLS.—One pound flour, one ounce butter, one ounce sugar, one full teaspoonful 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 it in a floured tin, and bake in a quick oven for fifteen minutes. When done, take out, glaze over with white of an egg, or a little milk, dust the remainder of the sugar over them, and return to the oven for a short time.

CHEESE FRITTERS.—Take three ounces or three tablespoonfuls 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 tablespoonfuls 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.—*Miss Dodd.*

LIVE STOCK.

Abortion in Cows—The "Probable" Cause of It.

It is a fact that abortion among the cows of our milk and butter dairies has become alarmingly prevalent—so prevalent that the Pennsylvania State Board of Agriculture has instituted diligent inquiry by numerous questions put to the most likely persons to know, "What is the probable cause of it, in public opinion?"

Although we are bound to respect public thought on all the issues of life, I cannot see any good reason why any one who may think he sees something good outside of common routine thought should not be at liberty to ventilate it, and specially if he attempts to give some cogent reason for "the faith that is in him." I shall make no assertion in this connection but what I think I can logically stand by. Of course positive proof of anything is in the power of but few on most of the questions of human experience, but such proof as I have to offer is the best that a limited experience has put in my power.

On our little farm at home we have but eight to twelve head of cattle, and, as we raise our own stock, there is always some "not in profit," or not milking. Since we have adopted the present management of our stock we have only had one case of abortion, and that from a known cause, while neighboring dairies are suffering from many every year, even to half and some more. I think we make as much butter per cow per annum on an average as any of them. For twenty years past we never have stabled our cows, day or night, summer or winter. Their pasture lies in one undivided enclosure contiguous to the barn and milking-pen. We never confine them except to feed and milk. There is plenty of running water and shade very plenty, and shelter at the barn for all. We feed a little wheaten bran all the time, and a little cornmeal towards spring, in the winter. We keep them only in thriving condition, not fat, and never "push" them for the purpose of "making it pay." It is an observable fact in nature that greed leads to the sin of excess and the curse of defeat of its own purpose.

It is an observable fact, too, that all power on earth is derived *from the sun.* That which is not direct between animal and the sun is first something else direct from the sun, and from thence to the animal, as to atmosphere, water, herbage, &c. This sun power thus modified to the animal, produces only certain natural effects, chief among which are the functions of procreation and the function of nutrition necessary to it.

It is also a fact in nature that everything to be perpetual is compensating one part for another; that is, in the case of the cow, when one function is active on which another partly depends, the other is comparatively quiescent or sympathetic. Nature is so profusely liberal in all her appointments and supplies that to a certain extent she may be tampered with, without producing entire failure of any material function. Yet beyond such limit man must learn, easily or dearly, he cannot go.

I have already on other occasions said so much that may be construed into disregard of public opinion, or a desire to run counter to it—a propensity I disclaim—that I need not here enumerate the many deviations from nature the milch cow is now undergoing at the hand of the dairyman. Every intelligent mind connected with the business is aware of it, and if he knows nature at all cannot fail to find *abuse of natural functions* as a probable, may I not say a "knowable," cause of abortion. And not only of abortion, but of the many forms of disorder prevalent among our herds.

I have been informed that the French get their heifers in milking condition and then have them "spaid," so that they may never cease milking until by force of nature they are worn out in the service, when they become a kind of beef! I do not vouch for this statement, nor do I know to what extent it is practised; but I have read it among many other to me strange innovations on dame nature, none of which, so far as I know, has been with impunity.—*Germantown Telegraph.*

The Villager's Pig.—How to Keep It.

A large number of our village subscribers keep a cow, and one or more pigs, just to save the waste from the table, and to help in the support of the family. Both are important sources of income when properly managed. The inevitable waste from the kitchen in an ordinary American family amounts to a good deal in the course of a year. It may as well be turned into pork, sausages, head cheese, spare ribs, and lard, as to be thrown away. A neighbor, who has a vegetable garden, and studies thrift, has just slaughtered two pigs, weighing 598 pounds, and worth $35.88 at the market price. The manure made from them is worth ten dollars at least. Two small pigs were put into the pen April 6th, and came out well fatted November 21st, about seven months and a half. The food consumed consisted mainly of sour and buttermilk, kitchen waste, small potatoes, cabbage, turnips, sweet corn, wind-fall apples, and other wastes from the garden. To this was added enough Indian meal to keep them constantly full fed from spring to fall. A good pen is an important item in feeding pigs. The sleeping apartment should be dry, and be kept well littered with straw, leaves, or sea-weed. From one-half to two-thirds of a pig's life is to be spent in sleep, if it is well treated. Give the pig the materials, and he will make a nice bed and keep it clean. The remainder of the stye is of less importance. There should be room enough to compost the manure, liquid and solid, with garden soil, corn stalks, weeds, and other refuse matter. The pig is unrivalled as a manufacturer of compost. Its good effects will be seen in all parts of the garden, where it is spread the following season. Regularity of feeding, three times a day, is one of the secrets of success. This may be at your own meal times, if your wife is a good house-keeper and keeps a clock in the kitchen. Good digestion depends upon regular meal hours for man and beast. There is then very little temptation to over eating, no cloying, and no spells of refusing food. A pig should never lose a meal after he is put into the pen, and should never be hungry enough to squeal. It requires some judgment in equalizing the rations, as well as in regulating their time. Much less of Indian meal is required for a ration, than of cooked potatoes, and less of potatoes than of kitchen waste. If anything is left in the feed trough, the ration has been a little too large, or not quite good enough. A pig should have all he can eat up and digest. A variety of food should also receive attention. The raw vegetables and fruits from the garden are excellent appetizers, and enable the pig to consume more meal. The meal may be mixed with cold or boiling water, with milk, or boiled fruits and vegetables, as suits convenience. It may be varied with unground corn, buckwheat, or mixture of ground grains. The time spent in caring for a pig usually comes at meal hours, and may be balanced by what we learn in the school of economy. There is perhaps no animal that will exhibit more satisfaction, and give greater returns for good care and feeding, than a pig; and on the other hand a hungry one without a warm home—one that has not had a proper bringing up—can make itself exceedingly disagreeable, both as to general appearance and the noise that it will produce; besides, such an animal is without profit. As a rule, it pays the villager to raise his own pork, and it pays him the greatest profit when he takes the best care of his pig.—*C, American Agriculturist, Feb.*

Feeding Bran.

Bran is an excellent food for production of milk in cows, and for feeding young animals. It contains a large proportion of the phosphates, which are a most necessary part of the food of an animal, but one in which most foods are deficient. In a ton of wheat bran there is fifty-four and a-half pounds. Rye bran is also richer in potash than that of wheat, by nearly forty per cent.; hence for food, and for the resulting manure, rye bran is preferable. In feeding bran the value of the manure should be taken into consideration. This, although it may not be seen so conspicuously, nor so quickly as the milk

in the pail, or the increased thrift of a young animal, yet it is as certainly exists, and in good time will show itself in the field. It is beyond question that in feeding a ton of bran, the larger part of the profit is made in the manure, and if one is satisfied with what he gains directly in the feeding, he may be all the more so with that which he receives in the manure.

Robert Bonner's Large Sale of Fine Blooded Stock.

A large number of admirers of fine blooded stock gathered at the Manhatten club grounds, New York, Wednesday morning, to attend the sale of some of Robert Bonner's horses. Horse fanciers from all parts of the country were present. Eighty-seven of Bonner's horses were sold. Only a few of the lots went at what may be called high prices, and even these were sold at rates far below the real value of the animals.

Keene Jim, a famous gelding, was sold for $4,000. The name of the purchaser was Charles A. Dana. The following are the names of some of the horses sold, with their price and names of purchasers: Prince Imperial, b. g., foaled June 2, 1869, sire Wm. Welsh, dam, celebrated Flora Temple, present year has shown a record of 2:23¾, was sold for $1,425 to W. F. Osborne, of Ansonia, Conn.; Thomas K., b. c., foaled May 16, 1874, sire, Edward Everett, trotted last year in 2:43½, was purchased by J. H. Clarke, of Scio, N. Y., for $500.

Black Leg in Calves.

This disease, which is so prevalent in spring and fall, and is so sudden in its attacks that it is nearly always fatal, affects only those calves which are well fed and in good condition. When the young animals are to all appearance thriving, the owner is apt to be satisfied and thinks all is well with them; but in reality it is then that watchfulness should be exercised, or at least some precaution should be used. Over-feeding is productive of more disease than scanty feeding, and when calves are known to be in a luxurious pasture, it will be wise to give them an occasional purgative of an excellent antiseptic character. Sulphite of soda is an excellent alterative, and may be given in one dram doses with some Epsom salts at intervals of a few days; once a week, for instance, will benefit as a preventive of this disease.

Breed Rather than Purchase.

The experience of many thriving farmers, says the *Massachusetts Plowman*, all over the country proves a better run of animals is obtained by breeding them on a farm than by purchasing them. More care is bestowed in selecting the likely offspring of tried animals. They will go on fattening more rapidly and uniformly than strangers picked up here and there, for it takes some time before these get acquainted and become contented enough to lay on flesh kindly in their new home; and, moreover, the tendency of your stock is upward, and the probability is that ere long it will not pay farmers to go into the market for young animals. In any case it is, as a rule, more profitable to breed the stock one handles than to purchase it.

Keeping Old Sheep.

The New York *Tribune* says: "It is folly to keep old sheep. They should be turned off to the butcher while they are in their prime. It does not take half so much to fatten them then. When they get old and thin, in order to put them in condition to slaughter, the whole superstructure must be rebuilt. Four sets of lambs are all a ewe can bear; this will bring her to five years, and this is an age when, with a little extra care, she will round up to a fine carcass. Exceptions may be made when the breed is scarce, and the blood is more valuable than anything else."

A Horse's Foot.

Those who will take the pains to examine a horse's foot will find it a set of elliptical springs separated from each other by a spongy substance, and the frog a cushion to rest the foot upon, the whole being admirably constructed for a heavy body to resist jars, from which the natural inference that cutting and paring the hoof and frog is not only useless but positively injurious.

Kentucky Mules.

Seventy Kentucky mules have been imported into England for use on the tramways. It is said that three mules can be kept as cheaply as two horses, and that their powers of endurance are greater than those of horses. In Glasgow the experiment has been tried with success.

LITERARY AND PERSONAL.

THE AMERICAN CULTIVATOR.—Devoted to agriculture, horticulture, markets, news, art, science and home literature, under the cabalistic motto: "Improve the mind and the soil." Boston, Mass. This is a large eight paged folio, six columns to the page, published weekly, at $2.50 per annum, by George B. James at 48 Summer street. No. 9, Vol. 42 is before us, and in quantity and quality surpasses any similar publication in the Union.

THE ROANOKE FARMER.—Published by Harrell Bros., Weldon, N. C., an 8 vo. magazine of 28 pp. No. 1, Vol. 2, for March, 1880, has found its way to our table, and is well filled with short and practical articles in the interest of husbandry and domestic industry. Although published in the "Sunny South," it contains much that is of general interest, not only to the farmers in its locality, but also to the entire country.

PURDY'S FRUIT FARM AND NURSERIES, Palmyra, N. Y. A royal 8vo. of 24 pp., being a descriptive retail catalogue of small fruits for spring, 1880, including strawberries, raspberries, blackberries, gooseberries, dewberries, currants, grapes, &c., in their different varieties, with interesting remarks in relation to their origin, habits, profit, prolification and culture. Send and get a catalogue before you commence your spring operations.

JOURNAL OF SCIENCE.—An illustrated periodical of practical information, designed for popular reading, and devoted to the diffusion of knowledge. New Series, Vol. 3, No. 3., Chicago, Illinois, March 15, 1880. A 4 columned demi-folio of 10 pages, Edited by C. H. Fitch, and published by "The Journal of Science Publishing Company, at $1.00 a year. The letter press, the illustrations, and the literary contents are of an able and practical character, and cannot fail to interest and instruct those who are of a practical and scientific turn of mind.

THE SORGO HAND-BOOK.—Being the twenty-first annual edition of a treatise on the Chinese and African sugar canes. Published by Blymyer Manufacturing Co., for gratuitous distribution, Cincinnati, Ohio. This is a handsomely printed 8 vo. pamphlet of 28 pp., including the covers, with 19 superb illustrations of the different sugar canes, mill, engines, evaporators and other implements used in making sugar, and instructions in culture and use. As an industrial enterprise sugar raising and manufacture must ultimately become a matter of permanent consideration among our farmers

SEVENTH QUARTERLY REPORT of the Pennsylvania Board of Agriculture for December, 1879, and January and February, 1880. A royal octavo of 48 pages. So far as material and typography are concerned, these are the best documents ever published by the State. This document is almost exclusively made up of reports of county fairs, and judging from the report of Lancaster county fairs of September last, they are pretty correct. We would admonish our local society that there is a "Chief among them taking notes, and faith he'll print'm." This year ought to elicit a better report than that of last year, anyhow.

THE HOMING PIGEON and Exchange Mart, Springfield, Mass., March 15, 1880. Published semi-monthly at $1.00 per annum. Sample copies 6 cents. No. 1, Vol. 1 of this exceedingly neat journal has been received, and it is replete with matter interesting to the "fanciers" of this species of pet stock. It is a double columned demi-quarto of 8 pp. on pure white paper, and, in typographical execution, it will compare with any other journal in the country. (After all there is nothing in the typographic art that will compare with black ink and pure white paper.) As its title implies, it is devoted exclusively to pigeon culture, and especially the "Homing," or carrier varieties.

THE STOCK FARM AND HOME WEEKLY.—A 6 columned and 8 paged folio, edited by O. G. Contant and H. C. Brown, and published by E. W. Noyes & Co., Kansas City, Kansas, at $1.50 per annum. This journal contains an immense amount of practical information on a great variety of subjects coming within the sphere of the farmer, mechanic, stock raiser and fruit grower, and is far in advance of any similar journal published in Pennsylvania. Vieing successfully with the *Prairie Farmer* and the *Rural New Yorker*. No. 2, Vol. 1, March 6, 1880, is on our table, showing that it is a new enterprise, and, coming as it does from Kansas, ought to be a guarantee of its ultimate success.

THE TORCH OF TRUTH.—Published monthly by Elder J. F. Weishample, North Queen street, Lancaster, Pa., at 25 cents a year. No. 1, Vol. 1, of this little 7 by 11 folio, has been kindly placed upon our editorial altar, and from our heart we wish it well. It is entirely an individual enterprise, but is published in the interest of the "Church of God." True it is small, but when we reflect that a single "parlor match" of the present day makes as brilliant a light as the largest old-fashioned "tallow dip," we may feel assured that friend Weishample's little *Torch* will be none the less luminous because it is small, nor will it burn the less brightly in lighting the torches of others. With all the significance that may be legitimately attached to a common saying—"may its shadow never grow less."

THE AMERICAN MONTHLY MICROSCOPICAL JOURNAL.—Edited and published by Romyn Hitchcock, F. R. M. S., No. 53 Maiden Lane, New York, at $1.00 a year, in advance; single numbers 15 cents, with club rates still more liberal. An octavo of 28 pp., of which a sample copy—being No. 3, Vol. 1 for March, 1880—has been received. Organized microscopic progress is comparatively a new scientific enterprise in North America, and mainly confined to the larger towns and cities. But now the subject is assuming a more important form, and increased facilities for microscopic observation, and a wider field for diffusion is opening, and this journal—although not the only one devoted to this specialty in our country—may legitimately take rank among the representatives of our microscopic enterprise and literature. Although many people look upon microscopy as merely a temporary source of amusement, it is of the utmost importance as an auxiliary in scientific analysis and minute investigation, and the chief wonder is why America has been so far behind Europe in this respect, connected as it so eminently is, with the atomic or protoplastic origin of material forms. Its practical character in many departments of knowledge will be developed as the science progresses, and like the telephone, its utility and its application to the economies of every-day life, will be e'er long fully recognized and regarded as a necessity. The *Journal* is a clean, neat and well-executed specimen of the typographic art, and its literary contents of a superior order. We commend it to the notice of our local society as an indispensable aid in their microscopic labors.

QUARTERLY REPORT OF THE STATE BOARD OF AGRICULTURE FOR THE YEAR ENDING DECEMBER 31, 1879.—Owing to the continued ill health of Hon. Alfred Gray, late Secretary of the State Board of Agriculture, the quarterly report for the quarter ending December 31, 1879, has been greatly delayed. The volume has been received, and among its valuable contents will be found the average condition of crops and farm animals, estimated acreage of winter wheat of 1879 compared with the acreage of 1878, crop statistics summarized by counties, showing the number of acres, product and value of crop for 1879, a general summary of all crops, acreage increase and decrease, average yield, also summaries by counties, showing the number and value of live stock for 1879, valuation of property, school statistics, showing number of school districts, number of school houses, value of school buildings, number of teachers employed, etc., population of Kansas in 1878 and 1879, showing increase by counties, meteorological summary of the year, an article upon Egyptian corn or Pampas rice, together with a chemical analysis of the same, and an article on pearl millet. Probably the most interesting feature of this report is the lengthy illustrated part devoted to "sheep husbandry" in Kansas, giving a short history and description of the various breeds of sheep and the experience of practical breeders in each county, closing with an illustrated sketch of "A Kansas sheep and grain farm, its receipts and expenditures." This is followed by a map showing the railroads of Kansas, January 1, 1880, and also the census districts. The volume closes with a brief biographical notice of the late Mr. Gray, who gave to this quarterly report the last labors of his life. The address of Rev. Dr. McCabe, which follows the biography, delivered at the funeral of Mr. Gray, is an eloquent tribute to a useful man.

"HAPPY DAYS."—A summer tour to the Azores and Lisbon, described in a series of letters written for the Philadelphia *Times*, by Marianna Gibbons. This is a square 12mo. pamphlet of 41 pages, in paper covers, and printed on tinted calendered paper, by John A. Hiestand, Lancaster, Pa. (*Examiner* Printing House.) These letters originally appeared in the columns of the *Times* over the pseudonym of "Maritana," and doubtless may have been read by those of our readers who patronize that paper. We are under obligations to the fair author of this little work for an advanced copy; we have read it, and have felt as much interest in it as we did in Russel Young's "Life and Travels of General Grant," although written from a different plane of observation. "One-half of the world don't know how the other half lives," and never would find out, if they circumnavigated the globe a dozen times, so long as their observations were circumscribed by royal and noble intercourse alone. Every letter contains something that is original, something new, something that is interesting, even if we have read it before. As coming immediately within the sphere of our agricultural function, we would remark that the dairy system of Lisbon is decidedly commendable in those districts of our country where it is impossible to obtain pure milk; unless they may be like the young lady who objected to the thick and yellow cream of the country, because it was not thin and blue like they get it in the city. The Lisbon dairyman drives his cow from door to door and draws from her udder, in the presence of his customers, the quantity they desire. There can surely be no adulteration under such a system. "John Donkey," as a means of conveyance, seems to occupy quite as distinguished a position in the West Indies as he does in the East, and all over the world he is the same patient, indolent and obstinate creature. The reader will find amusement and instruction in "*Happy Days.*"

MISCELLANEOUS.

The Fruit Evaporator.

Within a few years the evaporation of fruit by improved processes, under the stimulus of the current high prices for the product, has received much attention. American evaporated fruits have gained a great reputation in Europe, and now constitute an important item in commerce. The demand, market and price within the last year has added new interest and importance to the business.

Perhaps the most significant fact in this connection is, that simpler and cheaper, yet philosophical evaporators have been constructed, and are now going into use as an auxillary to the farmer and orchardist. Fruit growers should closely investigate and turn to account upon their own premises much, if not all, of the fruit that usually goes to waste or is sold at unremunerative prices. The fact that raisins are sold here for 10 cents per pound, after a carriage of thousands of miles, and evaporated pared peaches is worth 25 to 30 cents per pound, suggests at least investigation.

Seeds and Plants.

We would call the attention of those of our readers who contemplate purchasing seeds or plants during the coming season, to the advertisement of Peter Henderson & Co., New York, now appearing in our columns. Peter Henderson, the senior member of the firm, is known far and wide as a horticultural writer and authority. His books, "Gardening for Profit," "Practical Floriculture," and "Gardening for Pleasure," are now in the hands of thousands. The green-house establishment of this firm covers three acres in green-houses and employs upwards of fifty hands. Millions of plants are shipped by mail or express annually to every State and Territory. Their seed warehouse is the most extensive in the city of New York, and every order received is certain to be filled with goods of the best quality, and as they are producers as well as dealers, "everything for the garden" will be sold at low rates. Feb-3m

"Bo Peep"

This exquisitely wrought steel plate engraving, by the well-known artist, J. A. J. Wilcox, from a painting by that world famous German artist, Meyer Von Bremen, is one of the most beautiful and artistic engravings ever published. A mother and her child are away from the dusty town for an afternoon's recreating in the "Sylvan Wild" of Germany; golden pages are added to life's book of "Happy Hours." It is a genuine steel engraving, and so excellent in subject and body that its possessor can never outgrow it—become he or she however æsthetic in art. Printed on 22x28 paper. Price $3.00. Published by R. H. Curran & Co., 22 School street, Boston, Mass. Apr-1t.

The Cooley Creamer.

This method of "deep-setting of milk" is coming into so general use, that at the recent dairy fair in New York, it was not shown as a "novelty," but took its place as a common and indispensable adjunct to the dairy. With a Cooley Creamer a dairyman is entirely independent of the weather, and his product is uniform at all times. It is in this, as well as in its convenience, that the Cooley process of setting milk commends itself to all who make butter.

From our foreign exchanges we infer that it has been quite extensively introduced into use in Great Britain.—*Albany Country Gentleman.* Feb-4m.

Inventors, Take Notice.

To any of the readers of THE FARMER who desire a patent we would refer them to William R. Gerhart, Solicitor of Patents, at No. 34 North Duke street, (2d floor) Lancaster, Pa. He has opened communication with the Patent Office, at Washington, and is prepared to push claims with promptness and dispatch. Apr-1m

Ballard, Branch & Co.

In another column will be found the advertisement of Ballard, Branch & Co. Apr-1t

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 thorouhly 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.

JOHN A. HIESTAND,

No. 9 North Queen St., Lancaster, Pa.

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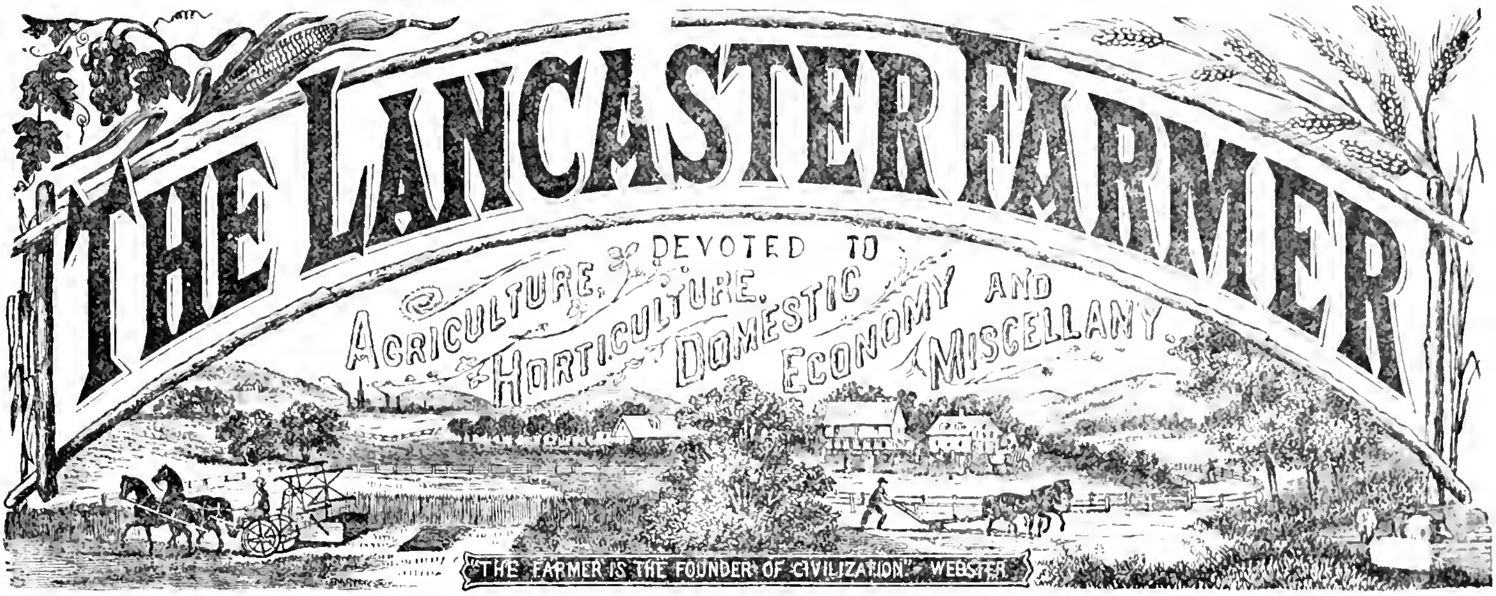

Dr. S. S. RATHVON, Editor. LANCASTER, PA., MAY, 1880. JOHN A. HIESTAND, Publisher.

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PENNSYLVANIA RAILROAD SCHEDULE.

Trains LEAVE the Depot in this city, as follows:

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*..	2:40 a. m.	4:05 a. m.
Way Passenger†	5:00 a. m.	7:50 a. m.
Niagara Express	10:05 a. m.	11:20 a. m.
Hanover Accommodation	10:10 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy	11:05 a. m.	12:40 p. m.
No. 2 via Columbia	11:07 a. m.	12:55 p. m.
Sunday Mail	10:50 a. m.	12:30 p. m.
Fast Line*	2:10 p. m.	3:25 p. m.
Frederick Accommodation	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom	5:15 p. m.	7:10 p. m.
Columbia Accommodation	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express	7:25 p. m.	8:40 p. m.
Pittsburg Express	8:50 p. m.	10:10 p. m.
Cincinnati Express*	11:30 p. m.	12:15 a. m

EASTWARD.	Lancaster.	Philadelphia.
Atlantic Express*	12:25 a. m.	3:00 a. m.
Philadelphia Express†	4:10 a. m.	7:00 a. m.
Fast Line*	5:20 a. m	7:40 a. m.
Harrisburg Express	7:35 a. m.	10:00 a. m.
Columbia Accommodation	9:10 p. m.	12:0 p. m.
Pacific Express*	1:25 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*	5:20 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 9:55 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 Lindsville.

*The only trains which run daily.

†Runs daily, except Monday.

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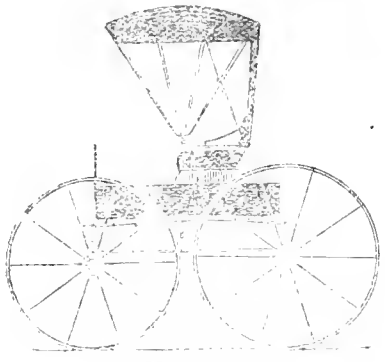

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Nov-1y

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor. LANCASTER, PA., MAY, 1880. Vol. XII. No. 5.

EDITORIAL.

THE STATE AND THE COUNTY FAIRS.

By reference to our "Literary and Personal" columns our readers will observe that the State Agricultural and Stock Exhibition will be held in the main Centennial Building, Fairmount Park, from the 6th to the 18th of Sept'r next, and that the International Exhibition of sheep, wool and wool products will open on the 20th of the month at the same place, thus making the two exhibitions almost continuous. A preliminary abstract of the list of premiums for horses, cattle and swine has already been issued; complete lists to be issued at an early day. The premiums, so far as published, are very liberal, and no doubt they will be so in other departments. Of course there will be a fine display, and "everybody and his wife" will be there, but this should not in the least detract from their participation—either as patrons or exhibitors—in their local county or district fairs.

In our June issue we will be able to announce the date of our own county fair, authorized by our Agricultural and Horticultural Society. As our own fair will only continue from Wednesday morning to Saturday morning—a period of three days—it will not at all interfere with those who may desire to visit or exhibit in the State fair. At the present writing the world of nature at least seems propitious, and, therefore, if we do not get up a grand county exhibition it will be due to our own apathy or indifference alone, unless some extraordinary contingency should supervene. This event should be thought over and talked over, at our outgoing and our incoming, at our uprising and our down sitting, between our door posts and by the wayside, and should be constantly kept as frontlets before our eyes—in short, just as a tobacco grower thinks about and talks about, and also *acts* about the various phases of his crops of the great "King-weed." When a tobacco grower deposits his "grain of mustard" in the ground he does not fold his hands in apathy nor turn the key to the lock of his mind, if he expects to realize a crop—not he—he establishes a *base line* and fights it out on that line, until his crop is housed, packed and sold. In a similar manner the managers and members of a society must act, and the people must reciprocate their action in getting up a successful county fair.

"EPHRATA PUBLICATIONS."

We make room in this number of THE FARMER for a very able and interesting essay on the subject of the early publications of Lancaster county, notably those of the ancient village of Ephrata; written, and read before the Linnæan Society, March 28, 1880, by Prof. J. H. Dubbs, of Franklin and Marshall College. Although not exactly germain to the objects of our journal, yet in view of its local character, and its relation to the early history of our county, we believe it will interest our agricultural, as well as our historical and scientific readers, and this must suffice as an apology for placing it thus irrelevantly before them. Indeed, we happen to know *personally* that there are quite a number of our rural patrons and readers who would rather, occasionally, peruse such a paper than the most elaborate essay on Agriculture, and to those who have time and inclination to make historical literature a collateral study, it will prove a fortunate "send." The history of Lancaster county has never yet been properly written up, and when the time comes for that, this will be an important auxiliary paper.

THE BROWN THRUSH.

(Turdus Rufus.)

This bird has a variety of common names, and also several scientific names, but is is best known in Lancaster County as the "Brown Thrush." "Ferruginous," "Fox-colored" and "Longtailed Thrush" are some of its common names. It is the *Turdus rufus* of Linn. although it has been recently removed to the genus *Harporhynchus*, but most of our readers, no doubt, would prefer the shorter name, which simply means Brown thrush.

This bird arrives in Lancaster county as early as the middle of April when the weather is favorable, but the present season it was too cold for him during the greater part of April, and he came a little later. He is a splendid singer and imitator, and hence has been also called the "Fox-colored mock-bird." Wilson says—"About the middle or 20th of April, or generally about the time the cherry trees begin to blossom, he arrives in Pennsylvania, and from the tops of our hedge-rows, sassafras, apple or cherry trees he salutes the opening morning with his charming song, which is loud, emphatical and full of variety. At that serene hour you may plainly distinguish his voice half a mile off." Notwithstanding

its singing characteristics, it is perhaps more interesting to the farmer and fruit-grower in another more important respect, namely, what he lives on? Mr. Gentry, who has made the life-history of birds a specialty for many years, says, "an examination of the stomachs of many individuals showed that its diet during the three or four first weeks of its visit is of a very decided coleopterous character." He has found 10 species of *coleoptera*, 4 of other types, 15 of *Lepidoptera*, and 6 different kinds of berries, constituting the luxuries upon which this bird habitually feeds. The names of these insects are given, and among them we recognize several of our most common and destructive species. They begin to pair about the 25th of May, and after building a proper nest and lining it with fine soft grass, the female lays four or five white, marked with reddish brown, eggs, which, in about 14 or 15 days bring forth a brood of young birds. The young are fed mainly on grubs and soft caterpillars, embracing about 10 species of Coleoptera and Lepidoptera. The bird is one brooded, and destroys an immense mumebr of insects in its lifetime, besides millions of *possibilities*, although as a change it will also appropriate berries.

CEREALIA CALIFORNICA.

We have before us three specimens of California's most prolific cereals, sent over by Mr. F. H. Russel, of Sacramento, to his brother Mr. A. W. Russel, of Lancaster city, and as they may be of interest to the farmers of Lancaster county, we essay a brief notice of them, mainly drawn from the illustrated catalogue of Mr. W. A. Sanders, of Sanders P. O., Fresno Co., California. Mr. Sanders has long been in the successful cultivation of beautiful and rapid growing evergreens, rare tropical and semi-tropical fruits, bamboos, sugar canes, tea trees, ginger roots, shal-lac, jujube and many other new and valuable trees and fruits; and, moreover, belongs to a well known family, including some of the most enterprising and practical men in the country.

The first we shall notice is the "East India Millet," (*Penicillaria spicata,*) a single head of which before us is fourteen inches in length and three in circumference, solidly studded with well filled seeds or grains from the base to the apex. This plant has been long cultivated, not only for its seeds, but for its immense yield of forage in the hot, dry regions of Asia and Africa, and like many other plants long under culture, it has developed into as many varieties as there are of wheat and corn. On the dry "sand plains" of Fresno, Cal., with only moisture enough to cause the seed to germinate, it grows to the height of twelve feet, and so dense that a horse can barely force his way through it—a perfect mass of tender foliage and stalks of the greatest value as a fodder for live stock of all kinds. In California it requires 178 days to mature its first crop of seed. From every point it sends out a shoot bearing a seed head each yielding an immense and constant amount of seed ripening daily until its growth is arrested by frost. A single seed is capable of producing 100 stalks, and forming a cluster three or four feet in diameter. For hay it is usually cut when four feet high, and it can be cut every thirty days until frost. In rich soil it has been known to produce at the rate of 2,000 tons of green fodder to an acre. As nearly as we can get at it, by counting the seeds in a single circle, and the number of circles in an inch, there are about 4,000 seeds in the head before us. If any of our readers desire to experiment they should get the instructions how to cultivate when they order the seed.

A *second* is called the "White Egyptian Corn" (*sorghum vulgare.*) Mr. Sanders says that this is the most valuable grain ever introduced into California. There are several varieties of this sorghum, but the white solid-headed variety introduced by himself is, in all respects, esteemed the most valuable. It is from the interior of China, and was introduced many years ago. It will make a crop on the poorer kinds of land, and with less moisture than other kinds of grain, being more valuable, pound for pound, than barley or Indian corn as a feed for horses; while for swine and fowls nothing of the grain kind equals it. Mr. Sanders remarks that by high culture he has realized at the rate of nine tons of seed per acre, and cut seven crops of heads, extending over a period of six months, harvesting a crop every 30 days. On the 19th of June, 1879 his ditch broke and overflowed a large piece of land. This he plowed as soon as it was dry enough, dropping the sorghum seeds in every third furrow. It never had any care, water or culture, and in 117 days from the day of planting he gathered sixty bushels, or 3,000 pounds of beautiful grain per acre; and in 1878 Mr. Burke of Yolo, Cal., formerly living in Ohio, raised 140 bushels per acre. We can fully realize the beauty of this grain,

for the head now before us measures five inches in length and nearly six inches in circumference, and this is barely an average specimen. It is very compact and the seeds are finely formed and nearly as pure a white as "pearl-barley." The advantages of raising this grain are represented to be: 1st. A larger yield on soil too poor to raise any other crop. 2nd. It will grow on soil too dry to produce a crop of rye or barley. 3rd. It requires no threshing—just cutting off the heads being all that is necessary; separating the grain from the head, from the appearance, would be an easy and simple process. 4th. It can be harvested at any time from August until Christmas, being ready at any time the farmer is ready. 5th. Its yield is greater and more valuable as stock or team feed, pound for pound, than any other kind of grain. And 6th. It is one of the most healthful and palatable articles of food that can be brought to the table of the family, either ground and made into buns, cakes, puddings, &c., or cooked whole as a substitute for rice. It leaves on the ground when summer food is gone immense amounts of green stalks, leaves and heads, which is eagerly eaten by stock of all kinds, and is therefore a valuable forage.

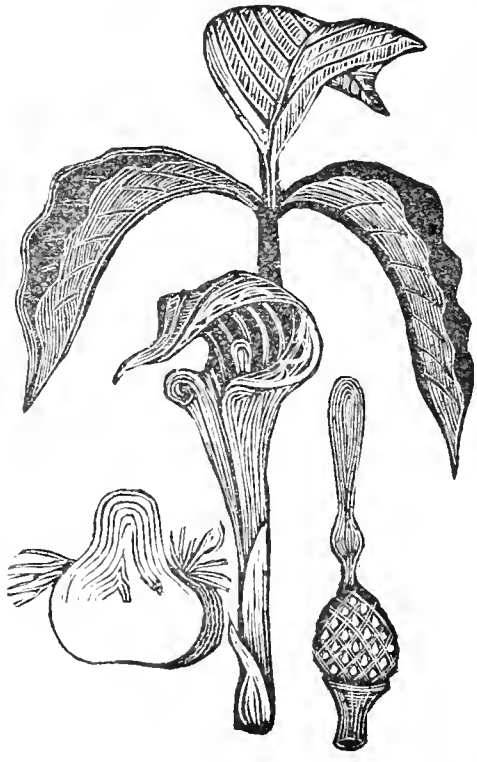
The *third* specimen is the "Liberian Imphee," a variety of *sorghum vulgare*. Its seeds are red, and it is a large growing plant; remains a long time in leaf growth, making it a valuable forage plant. It is confidently said to be never affected by disease of any kind. Its yield of syrup or sugar in the hot, dry climate of southern California is said to be much greater than the Chinese variety, and, therefore, it is regarded as one of the most valuable varieties, and will make twice as much syrup per acre as the restricted sorghums, which are more valuable for forage than for sugar. The hybrids of the sorghums and the imphees are of a quick growth and are mainly valuable for forage. This and the Chinese imphee are the most valuable for the production of sugar. The head of the specimen of imphee before us measures seven inches from the base to the apex, and the circumference is nine inches. This seed head recalls a variety of "imphee" that was cultivated in this country more than half a century ago as a substitute for coffee *That* was a dark purple variety, and was known under the names of "Chinese Coffee-corn," "Chocolate corn," or simply "Chinese coffee." The seeds nearly all had a white face or a white spot upon them, and were much larger than the variety before us; not only were the seeds partly purple, but the stalks and leaves were also streaked with that color. Nothing, to our recollection, was at that period known of its saccharine qualities, and it seemed to be cultivated entirely for the purpose of making coffee. It was while the country was financially prostrated after the "financial crash" of 1817, when roasted rye had been substituted for coffee. We can distinctly remember the rye-coffee of 1820, when merchants received it roasted, by the barrel, from Philadelphia, and almost everybody became weary of it. The *chocolate corn*, as it was commonly called, was hailed as a blessed relief, and nearly every one that occupied only a town lot, raised this plant. It was roasted and ground in a coffee-mill, and the beverage had the taste, smell and general appearance of chocolate. It was hardy and grew with only ordinary garden cultivation.

These latter remarks relate mainly to the poor, or those only in medium circumstances; for it may be supposed that those who were really rich never relinquished the use of coffee because it was high in price; and we have indulged in these comments here for the purpose of illustrating that whatever might be realized from our soil—as compared with that of California—and whatever the use and market value might be of such crops, those who may intend to raise them need entertain no unfavorable apprehensions on climatic grounds. Sorghum, imphee, millet, broom-corn and other plants of their class have been grown luxuriantly and with perfect safety in Pennsylvania, and especially in Lancaster county, although it might take a long time before they would supersede corn and tobacco on the score of profit alone. The specimens can be seen at Russel & Shulmyer's coal office.

INDIAN TURNIP.

(Arisæma Triphyllum.)

This plant, so well known to every one whose boy-life was passed in the country, or near a woods, belongs to the order ARACEÆ or Arum family, and the class of MONOCOTYLEDONOUS plants. It is the *Arum triphyllum* of Linne, and is very common, abounding in rich woodlands generally, and appears in May. The conu is turnip shaped, wrinkled, farinaceous, with an intensly acrid juice. Each plant bears but a single flower, usually green, variegated with dark purple and whitish stripes. The fruit is cone shaped, and in August and September is of a deep scarlet color. There are several species allied to our Indian turnip, both in our own country and in other parts of the world, all of which possess its acrid and farinaceous characters. The root has been used as a medicine, but now seems to have gone out of use. It was at one



time thought to be an unfailing remedy for rheumatism; and, when a boy, it was administered to us as a remedy against ague, on account of its heating qualities, but we can hardly remember the result. One thing, however, we do remember, that boiling it destroys its acridity in "to-to." Indeed boiling it in milk and adding a little pepper and salt makes it a pleasant and nutritious food. It is surprising to note the great change it undergoes in its culinary preparation, and it seems to us that those who live along or near the margin of a rich wood might do much worse than to cultivate an Indian turnip bed. The Egyptian *Arum* and the *Taro* of the Polynesians belong to the same family of plants, have the same acrid character when raw, but they are cultivated as an esculent, and large quantities are consumed by the natives. They are esteemed for their mild and farinaceous quality. No doubt the Indian turnip might be cultivated, both from the seed and the root, but perhaps it never would "pay," owing to the fact that they require the rich forest mould and the forest shade for their support and protection. Still, as we have intimated above, those persons favorably located might cultivate them for their own use.

STATE BOARD OF AGRICULTURE.

Programme for the Summer Meeting to be Held in June.

The Summer meeting of the Pennsylvania Board of Agriculture will be held in Gettysburg, commencing on Wednesday, June 9. The following is the programme as decided upon:

Essays and Subjects for Discussion.

Is stock raising profitable to the Pennsylvania farmer? By John L. George, member from Washington. Buckwheat—under what conditions is its culture profitable? By M. W. Oliver member from Crawford. Sanitary arrangement of farm buildings. By Dr. Harvey, member from Delaware. Which constitutes the most economical team for farm work, mules or horses? By W. G. Moore, member from Berks. Clover as a fertilizer. How does it enrich the soil? By Prof. J. Hamilton, member from Centre. The exhaustive effects of different crops. By the Secretary of the Board. Legal rights and duties of farm employer and farm employees. By Geo. W. Hood, member from Indiana. How can a farm be most economically improved from sources within its borders? By Col. James Young, member from Dauphin. Preparing the ground and cultivation of corn. By John B. Smith, member from Luzerne Is cherry growing profitable? By W. S. Roland, member from York. Salt as a fertilizer. By James Miles, member from Erie. Lime and its action. By the Secretary of the Board. A plea for nomenclature. By J. A. Herr, member from Clinton. Are fruit preserving houses a success and are they profitable? By H. M. Engle, member from Lancaster. Does cutting injure the vitality of the potato? By Dr. James Calder, President Pennsylvania State College. Other essays and subjects will be offered for discussion.

At some time during the continuance of the sessions, Prof. S. Breideubaugh will address the meeting on "Some points in the relation of Chemistry to Agriculture," and Thomas Meehan, the botanist of the Board, upon "Practical lessons from Botanical Science."

Excursion tickets to Gettysburg and return will be issued from stations on Pennsylvania railroad and branches.

QUERIES AND ANSWERS.

Linyphia.

Mr. J. B. A., Lancaster, Pa.—The yellowish spider from Montana, according to the arrangement and number of its eyes, apparently belongs to the genus *Linyphia*; and the color and other characteristics seem to approximate it to the species *autumnalis*, but, coming from Montana, it is more likely to be an entirely new species. The specimen is considerably "shriveled," and the abdomen, especially, has sundry depressions and elevations that would not be present in a fresh or living specimen. Spiders also moult several times during their lives, and the same species may present a different appearance between the respective moulting periods, therefore, species captured late in autumn or during the winter are most likely to be perfectly developed, and possess the most reliable characteristics.

Seventeen-Year Locust.

Mrs. P. E. G., Enterprise, Pa.—Your insects seem to be the larvæ of the seventeen year locust (*Cicado septendecim*) in the 12th year of their development. Of course this conclusion is only inferential. I received a larva of the same kind in October last, which I inferred to be in its 11th year, from the fact that it was quite too large to belong to our annual species. These are somewhat larger than that specimen was. I have one also of about 5 years ago which was still less than that of last year. We had the Cicadas in this county in 1868, if they therefore belong to the 17 year species they must be in their 12th year. For myself, I think they are.

May-Beetle.

Mr. J. M. W., Lancaster, Pa.—Your big brown beetle, is our common "May-Beetle," or "June Bug," as some people are wont to call it, (*Lachnosterna quercina*) and is the parent of a "White Grub" that feeds on vegetation underground, and sometimes becomes very destructive.

Grape-leaf Flea-Beetle.

Mr. H. G. B., of Strasburg, and *Rev. J. H. P., of Elizabethtown, Pa.*—Your greenish-blue, and steel-blue insects, are the "grape-leaf Flea-Beetle," (*Graptodera chalybea*), and where they are numerous they are very destructive. I have seen them destroy the foilage from the base of the vines to the ends of the branches. There are two broods in a season, the last brood hibernating under ground, or under the bark of trees, coming forth in the spring and attacking the young buds, or the young leaves. The females of those received from Strasburg were already gravid, and had commenced depositing their eggs in the buds and on other parts of the branches, sent with them. They are called "flea-beetles," because they have leaping power, and to distinguish them from other species that have not this power, but are otherwise of the same size and color. After these spring visitors have deposited all their eggs, they will probably all die, but they will leave behind an increased brood, in the form of young tuberculated six-footed larvæ that will prey upon the advanced foilage, and from them a second brood will be produced before the seasou closes. I have seen them as late as August and September—indeed the first time I was able to identify the *larvæ* and *imago* was from specimens of the larvæ obtained at West Chester in 1860, and I also then learned they underwent their transformation underground The larvæ at first are very small and of a very dark color, but as they increase in size they become of a light-brownish or tawny color. Drenching the vines with a tobacco decoction, or a solution of whale oil soap, would destroy the larvæ, if it is properly done, but it might require several applications to be entirely effectual.

There are many species of these leaping or Flea-Beetles (*Halticidæ,*) the turnip, cabbage, lettuce, potatoes, eggplants and other species of domestic plants, and even the "Nightshade," "Jimpson Weed," and other poisonous plants, have species that prey upon them, from which we may infer they are "tough customers."

Horned Grebe.

Mr. S. L., Manheim twp.—The singular bird (water-fowl) you captured alive in the road, about a mile from any stream, a week ago, is a splendid specimen of the "Horned Grebe" (*Podiceps cornutus,*) and it probably was beaten down in its flight by the storm that prevailed a day or two previous, or through some other contingency, for the bird would not have traveled so far from water of its own accord, even if it were able to do so. The water is its normal element, and there also it finds its food.

Hammer Bug.

Mr. B. D. G., North Queen St., the two gray, big-eyed beetles you dug out of rotten wood are male and female specimens of our largest Pennsylvania "Hammer bugs" or "click beetle," in German "Schnell kaeffer," (*alaus oculatus.*) They are wood borers, but generally prefer wood that has already commenced to decay.

Essays.

REPORT OF THE PRESENT CROPS.*

A bountiful Providence has given us, so far, a promising prospect of an abundant harvest, both of cereals and of fruit. Everything appears to be ten days in advance of an ordinary season. Fully 99 per cent of the wheat-fields look favorable. The grapes look well. The tobacco plants are well started. The apple trees that had not been blooming for several years are now luxuriantly covered with flowers; it is the same with cherries, peaches, pears, apricots, nectarine, &c., all have been, now are, or soon will be in abundant bloom—all dressed in nature's most gaudy garb, and giving promise to man. The prospect at present for all kinds of fruit is promising whatever the final result may be; within the blossoms of the cherries and peaches, the little fruits are already formed. It is too early to render an opinion on "small fruits," but the others appear to be "all right," and little or nothing is frozen. Of course, nothwithstanding all this, we cannot be *sure* of a good crop of anything so early in the season. But so far as relates to the wheat, we can at least rely with some degree of certainty on a good crop of straw. Wheat sometimes fails to fill when maturing, but in an early season, there is less danger of this contingency. Apples and peaches cannot be considered out of danger before the first of June, at least. In 1833 or 1834, the fruit crops were destroyed, I think, on the 2d day of June. The cold April we have had, has been favorable to wheat, and the rains have greatly benefited the grass. Notwithstanding the talk of a late spring, every thing is really in advance of an average spring, and a good deal earlier than many others I can remember. —*L. S. Reist.*

*Read before the Agricultural and Horticultural Society, May 3, 1880.

EPHRATA PUBLICATIONS.*

In Longfellow's Gaspar Becerra, the artist who had failed to shape his ideal from the precious material brought him from distant Eastern islands, succeeded beyond his anticipations when he began to carve his image from the oaken brand that was smouldering on his hearth. In the final stanza the poet has beautifully concentrated the moral of the legend:

> "O, thou sculptor, painter, poet!
> Take this lesson to thy heart:
> *That is best which lieth nearest;*
> Shape from that thy work of art."

May not the ancient legend have its lessons, even for those who are not sculptors, painters, or poets? We often seek far and wide for the materials of study when subjects of the profoundest interest are lying neglected at our doors. Thus, for instance, the early history of our own county presents many themes for investigation, which have not, as yet, received the attention which they certainly deserve. Lancaster has, indeed, been blessed with a number of local historians, for whose labors we are profoundly grateful; but some of these have devoted their attention almost exclusively to public records, without carefully studying those obscure sources from which alone we can derive an accurate knowledge of popular life. It is, no doubt, an interesting task to trace the history of the great colonial families who sought, in their feeble way, to transplant the English aristocracy to American soil; but it should not be forgotten that between these magnates and the body of the people there was "a great gulf fixed," so that the history of the one party can give us no idea of the condition of the other. Many writers seem to have taken it for granted that in early times all the intelligence of the community was to be found among the ruling classes, but the facts of history prove such a supposition to be utterly erroneous. The so-called amenities of social life must, of course, be principally sought among the aristocracy, and not with a people who intentionally discarded them; but for real learning and genuine literary enthusiasm, the English rulers were not to be compared with some of the humble German pioneers. Thus, for instance, it will hardly be denied that, at the middle of the last century, there was more classical learning in the monastery at Ephrata than in all the rest of the community.

Long before the American revolution, Ephrata was an important literary center. As early as 1750, according to the German author Max Goebel, laws were passed in Germany forbidding the sale of books printed at Ephrata; and Rupp informs us, that after the adoption of the Declaration of Independence that important document was at Ephrata translated into seven different languages. It may therefore be worth our while to consider the books printed at Ephrata during the last century, which are now considered among the rarest issues of the American press. We must, however, first be allowed a few words of introduction, by way of explaining the circumstances under which they were produced.

When the treaty of Westphalia, in 1648, concluded the long struggle known as the Thirty Years War, liberty of conscience was allowed to the three great religious parties, Catholics, Lutherans and Reformed. The Anabaptists were, however, expressly excluded from the terms of the treaty, and it was even made the duty of the various governments to prevent them from holding religious assemblies. The rulers of Europe had evidently not forgotten the excesses of John of Leyden and Thomas Muenzer, but they did not know—or, perhaps, did not care to know—that the fire which gave rise to the "Peasant War" had entirely gone out. They did not recognize the fact, that the people who had come to be called Anabaptists were in no way connected with the fanatics of the sixteenth century; and that those of their number who followed the mild teachings of Menno Simon were in reality the gentlest portion of the German nation. It was only in Holland that the Mennonites were kindly treated, and there they gathered and prospered, until they became, as they are to-day, a wealthy and important body.

Towards the end of the seventeenth and at the beginning of the eighteenth century a great religious revival occurred in the Lutheran and Reformed churches of Germany, principally under the influence of Philip Jacob Spener and Gerhard Ter Steegen. The influence of this movement was not only extensively felt in the established churches, but it indirectly served to bring to light the various scattered Anabaptist communities. The old penal laws were now relaxed, and the avowed sympathy of a large party in the state churches for all earnest searchers after religious truth, encouraged this persecuted people once more to bring their peculiar doctrines to the light of day. As they were, however, without a general organization, it was perhaps but natural that different sects should spring up in different places: and some of these, it must be confessed, soon ran into unwarrantable extremes, and, of course, have long since ceased to exist. These various sects, it must be remembered, drew into their communion many scholars of mystical tendencies, to whom the sacrifices involved appeared to be possessed of peculiar fascinations.

The most important of these new religious organizations, as it afterwards turned out, was that of the "Brethren," founded by Alexander Mack and others in 1708. This body was nick-named *Dompelars*, or "dippers"—a name which appears, in this country, to have been corrupted into Dunkers or Dunkards. As it is well known, this whole society emigrated to America. It is, however, rather amusing to find on the records of the Reformed Synod of Solingen, in 1719, a resolution returning thanks that the Dompelars of Crefeld have run away and sailed to Pennsylvania. These rejoicings were, however, premature, as it was not until 1729 that the last of the "Dompelars" set sail for America.

Time will not allow us to give an account of the first settlement at Germantown and "Conestoga," nor of the great schism which subsequently occurred among the "Brethren," principally on the subject of the proper day for the observance of the Sabbath. We need only say that the hermitage of Conrad Beisel, the leader of the schism, and the foundation, in 1732, of the convent at Ephrata, were by no means unheard of things. We need but refer

*Read before the Linnæan Society, by Professor J. H. Dubbs, D.D., of Franklin and Marshall College.

to the monastery of the "Woman in the Wilderness" on the Wissahickon, and the somewhat similar institution founded by the Labadists at Bohemia Manor, in Maryland. These things were indeed in strict accordance with the general spirit of a movement whose rallying cry was, "Come ye forth out of Babylon!"

It is our present intention to consider, especially, the literary activity developed at Ephrata, and to this subject we must limit ourselves, however fascinating it might be to pursue a more general theme. Of course, the Monks of Ephrata labored principally for the propagation of their peculiar doctrines, but in pursuance of this object they toiled with a degree of energy and perseverance which is unexampled in the history of literature.

It is stated in the "*Chronicon Ephratense*" that in 1728 Conrad Beisel published a book entitled "Neun und Zwanzig Sprueche," and soon afterwards a small volume on the "Sabbath. Where these books were printed is unknown, and not a single copy of either of them is known to exist. If any one could bring specimens to light, he would furnish a real contribution to the history of American literature.

The earliest volumes printed for the Ephrata society, of which there are extant examples, were issued from the press of Benjamin Franklin. As there was at that time no font of German type in America, the characters employed were Roman. The titles of these books were long, and according to the peculiar taste of the age, were in many instances rhyming or alliterative, so that we can only give enough of the title to insure the recognition of the book. The first of these Franklin imprints is dated 1730, and is entitled, "Goettliche Liebes und Lobes Gethoene," or, in English, "Divine Melodies of Love and Praise." The only copy of this book of which we have any knowledge is in the celebrated library of Mr. Abraham Cassel. The second book of this series is dated in 1732, and is called "Vorspiel der Neuen Welt" ["Overture of the New World."] In 1736 still another volume was issued from the same press, entitled "Jacob's Kampff und Ritter Platz" [Jacob's Scene of Conflict and Knighthood.] These volumes are all hymn-books, consisting principally of original hymns, which are in the highest degree mystical. Many of these hymns are addressed to "Sophia," a term which signifies the wisdom of God, and which is here personified as a female personage possessed of the most extraordinary graces. In 1739 a larger volume of a similar character was published for the Ephrata Society by Christopher Sauer of Germantown. It was the first book issued by that celebrated publisher, and, indeed, the first book printed in America in German characters. Its title is "Zionitischer Weyrauch's Huegel'oder Myrrhen Berg." ["Zion's Hill of Incense or Mountain of Myrrh."] It is a well printed 12 mo. of 792 pp., not including the preface and index, and includes 691 hymns, most of which are evidently original. The book is dedicated to "all the solitary turtle doves that coo in the wilderness," and the turtle doves of Ephrata certainly themselves kept up a billing and cooing that made the forests ring.

In 1737 appeared, in German and English, the "Wisdom of God," being a testimony of Michael Welfare, delivered in Philadelphia Market, September, 1734. It is mentioned in Thomas' "History of Printing," but the name of the publisher is not given. It was, however, probably printed by Benjamin Franklin. Michael Wohlfarth, who called himself "Welfare" in English, was prominent among the Monks of Ephrata, and exerted considerable influence outside of his cloister. He died in 1741.

In 1742 the Society at Ephrata obtained a press, and now began the publication of a long series of volumes bearing the Ephrata imprint. The first book printed was by Israel Eckerlin, and was directed against the Moravians; but as Eckerlin was declared a traitor, his book was burned by order of the Society, and not a single copy is known to exist. Several other books by Eckerlin are also mentioned in the records of the Society, but they too have entirely disappeared.

It will probably best serve our present purpose to present a list of the older Ephrata publications, arranged according to the year of their publication. We give the German title in an abbreviated form; then add a free translation enclosed in brackets, and in some instances add a few remarks concerning the character of the volume. It is possible that some Ephrata books are extant which are not included in this list, but, if so, we would be very glad to be informed of their existence:

1745: "Urstaendliche und Erfahrungsvolle Hohe Zeugnuesse," &c. [Testimonies of Spiritual Life] 4 to., pp. 294. This book contains the testimonies of Conrad Beissel, and is for that reason interesting and important. It tells us about "the joys of virginity" and "the raptures of silence." It renders it certain that the Ephrata doctrine was directly derived from the theosophy of Jacob Boehme, "the inspired shoemaker of Gorlitz."

1745: "Gueldene Aepfel in Silbernen Schalen," [Apples of Gold in Caskets of Silver,] 12 mo., pp. 519. This book is said to have been printed for the Mennonites. It contains extracts from the writings of Thomas von Imbroich and other martyrs.

1745: "Die ernsthafte Christenpflicht," [The earnest Duty of Christians,] 12 mo., pp. 120. Contains the lives of several Baptist martyrs.

1747: "Das Gesang der Einsamen und Verlassenen Turtel-taube," [The song of the solitary and forsaken Turtle-dove,] 4 to., pp. 359. Here we have some additional "cooing." It is a curious question what the Brethren at Ephrata can have wanted with so many various hymn-books.

1748: "Der Blutige Schauplatz oder Maertyrer Geschichte der Taufgesinnten," [The Bloody Scaffold or Baptist Martyrology," folio, pp. 1514. This immense folio, of which copies are still occasionally seen, was a reprint of a work first published in Europe in 1660. Its republication was undertaken principally at the suggestion of the Mennonites. The printing occupied fifteen of the brethren almost constantly for three years, and it is really astonishing, that under the circumstances, so great a work could have been produced in so creditable a manner. There appear to have been two editions; one containing a frontispiece with mystical figures and emblems, intended for the "Brethren;" the other, which is by far the most common, was without the emblems, and was probably intended for circulation among the Mennonites and the great body of German Baptists. The book has been frequently reprinted, in Lancaster and elsewhere, but it is only with the Ephrata edition that we are at present concerned.

1752: Erster Theil der Theologischen Lectionen, [Theological Discourses, Part 1,] 4 to., pp. 432. A copy of this book is still in the monastery at Ephrata.

1754: "Eines Christen Reise," [The Pilgrim's Progress,] 12 mo., 2 parts, 280 and 264 pages. The first edition of Bunyan's Pilgrim's Progress ever published in America.

1755: "Nachklang zum Gesang der Einsamen Turtel-taube," [Echo of the Song of the Solitary and Forsaken Turtle-dove,] 4 to., pp. 111.

1756: "Das Bruderlied, oder ein Ausfluss Gottes," [The Brothers' Song,] 4 to., pp. 30.

1756: "Ein Angenehmer Geruch der Rosen und der Lilien," [The Pleasant Odor of Roses and Lilies,] 4 to., pp. 18. The two preceding volumes were respectively issued by the Brethren and Sisters. The first is dated at "Bethania"—the brothers' house; the second is said to have been composed in "Saron," the dwelling of the sisters.

1759: "M. Tobias Wagner's Abschied's Rede an seine Lutherische Gemeinden," [M. Tobias Wagner's Valedictory Discourse,] pamphlet, pp. 9.

1762: "M. Valentin Wudrian's Creutz Schule," [Wudrian's School of the Cross,] 8 vo., pp. 465.

1762: "Neu vermehrtes Gesang der einsamen Turtel-taube," [Improved edition of the Song of the Solitary Turtle-dove.] First published in 1747.

1763: "Eine Kurtze Vorstelling des Theils von Africa, welches bewohnt wird von Negroes," [A short account of Africa,] 8 vo., pp. 107. A book against the slave trade. In an imperfect list of Ephrata publications, in the possession of the Historical Society of Penna., this volume is said to have been issued in 1757. I can, however, find no other evidence of the existence of an edition of that year.

1764: "Von der Historia des Apostolischen Kampfes," [The History of the Apostolic Conflict,] 8 vo., pp. 388.

1764: "Des jungeren Nicodemi Evangelium," [The Gospel of St. Nicodemus.] The two preceding volumes are apocryphal books which have been great favorites with mystics. The latter, especially, has been frequently printed in this country.

1765: "A Dissertation on Man's Fall—Translated from the High German Original," 8 vo., 37 pp. The author of this book was Conrad Beissel. It is curious on account of its appearance in the English language.

1766: "Paradiesisches Wunder-spiel," [Wonderful Melody of Paradise,] 4 to., pp. 472. Another collection of hymns.

1767: "The Family Prayer Book. Containing Morning and Evening Prayers. For Families and Private Persons. To which are annexed directions for a devout and decent behaviour in the publick worship of God, more particularly in the use of the Common Prayers appointed by the Church of England, together with the Church Catechism. Collected and published chiefly of the Episcopal Congregation of Lancaster, Pequea, and Cænarvon. Printed for T. Barton." We give this title on the authority of a *query* in the last number of the "Pennsylvania Magazine of History;" but have never seen a copy of the book.

1769: "Christliches Gemuethsgespraech," [Christian Meditation,] 8 vo., pp. 168.

1770: "Die Ernsthafte Christen Pflicht," [The Earnest Duty of Christians.] A second edition of the book published in 1745.

1773: "Deliciae Ephratenses," Pars 1, ["The Delights of Ephrata."] Discourses of Conrad Beissel.

1786: "Chronicon Ephratense," [The Chronicle of Ephrata.] This book contains a history of the order, and is on this account valuable and interesting. It furnishes a vast amount of material to the student who desires to enter minutely upon this curious theme.

1788: Anhang zum Widerlegten Wiedertaeufer, [Appendix to the Confuted Anabaptist.]

1788: "Apologia oder Schriftmaesige Verantwortung," [Apology or Scriptural Answer,] pp. 72. The two books last mentioned were directed against a volume called "The Confuted Anabaptist." The authorship of the second volume is ascribed to Alexander Mack, Jr.

1790: "Merkwuerdige Geschichte von einem Menschen der mit dem Teufel in einem Bund getreten," [Wonderful History of a man who had made a compact with the Devil.] The author of this book is given as Rev. J. G. Schroeder, Evangelical Minister in Maryland.

1792: C. A. Roemelings' "Herausfuehrung aus Babel," ["Deliverance from Babel,"] pp. 542. This book contains a number of religious tracts by Roemelings, Gottfried Arnold, Ter Steegen and others, some of which were published separately.

1792: "Christliche Bibliothek" von Georg A. Martin, [Christian Library,] 8 vo., pp. 148.

1792: "Vom Christlichen Gebrauch der Liedez," [The Christian Use of Hymns,] 12 mo., 56 pp.

1795: "Das Neue Testament," [The New Testament.]

1795: The Cheap and Famous Farrier.

About the end of the last century the Eph-

rata press appears to have passed into private hands. There is a small hymn book (Das Kleine Davidische Psalterspiel) issued at Ephrata in 1795, by Solomon Mayer. During the earlier part of the present century Joseph Bauman, of Ephrata, printed a number of volumes, among which the "Works of Jacob Boehme" enjoyed an extensive circulation. The most curious of the later Ephrata books is the autobiography of Ezekiel Sangmeister, which was published in numbers in 1825. Sangmeister was a monk who was opposed to Beissel, and who wrote his own life, as a bitter commentary on the "Chronicon Ephratense." His writings remained hidden for many years behind a secret panel in the wall of his cell, and seem to have been suppressed soon after their publication, as copies are now quite scarce. Another Ephrata printer was Jacob Rush, who issued Boehme's "Christosophia, and possibly other volumes of a similar character.

It would be interesting to follow the literary history of Ephrata to its conclusion, but we have already occupied more time and space than we had intended; and, at any rate the volumes bearing the names of individual Ephrata printers are not so highly regarded as those which were issued by the direct authority of the brotherhood. Possibly, at some future time, we may complete our work by giving a list of the Ephrata books of the present century.

Though our present essay will, no doubt, appear uninteresting to the general reader, it is but just to say that it is the result of much labor, supplemented by the materials furnished by the Historical Society of Pennsylvania and the Lenox Library of New York, and greatly enriched by the notes of Prof. Seidensticker, published in the "*Deutsche Pionier.*" It may be hoped that our present work may, at any rate, be useful for reference, and that it may possibly result in the discovery of some Ephrata imprints which have hitherto escaped the attention of bibliographers.

The old Ephrata press, after its long and arduous service, has found an honored resting place in the hall of the Historical Society of Pennsylvania. It is our privilege, as residents of Lancaster county, to aid in giving honor to the humble brotherhood which sought, amid unnumbered difficulties and privations, to afford to our fathers the priceless blessing of a Christian literature.

CONTRIBUTIONS.

FOR THE LANCASTER FARMER.

STELLAR INFLUENCE?

EDITOR LANCASTER FARMER: *Dear Sir*:—Some six to eight months ago, there was some controversy in the FARMER, as to the effects of planetary influence on mundane affairs, especially as to the growth of vegetation. As I have not made any experiments myself, not seen any reports on this dark subject since then, I would be pleased to hear from others. Possiby there may yet be "some light hid under the bushel," or in some man's "knowledge box," that would, if brought out—give us more information on the subject. Has our "amateur farmer" made no new discoveries on his eight by ten farm?"

This being a rainy day, preventing out-door exercise, I will jot down a few thoughts, as they may occur, which our kind editor may put in type, or the waste basket, as to him seems meet and proper."

Of course we shall be laughed at as "moonstruck," by self-opinionated wiseacres, but "non import." It is an old saying "to laugh and grow fat" is conducive to health! So, if we are laughed at, we may congratulate ourself that we have done some good to our fellow mortals, in this "our day and generation."

But what I especially wish to call the criticism of the scientific readers—that there are yet many things in nature that are incomprehensible to *human science.*

Some days ago, I, in company with another, went to see the "floral treasures" of a lady, who is a firm believer in cause and effect, or perhaps we had better say—"in stellar influence on vegetation." We may not mention her name, as she would not like to see her name in print. Unfortunately, the lady was from home, so we could not have the pleasure of her knowledge of plant life. Still her husband and daughter took us around and appeared pleased to show us their floral treasures. She has four rooms in their two-story house, crowded with plants in pots—many dormant in the cellar, and a small greenhouse, about ten or twelve feet square, or probably the size of our "amateur's farm!" Every nook and corner from ground to top one mass of plants.

The whole collection in house and greenhouse is in such a healthy and flourishing condition and entirely free from insects, that not a leaf could we discover that had ever been touched by insect pests. She never smokes with tobacco to kill the *aphids*, nor evaporates sulphur to destroy *red spiders*, nor know anything about *mealy bugs.* But if we understand her plan, it is simply *to transplant or shift her plants, during certain signs, or position of the mooon in the zodiac.*

Is such belief moonshine or superstition? I do not know; I simply state the facts as I found them. If such results can be explained ontside of "stellar" influence, then we could probably accept the idea, as generally entertained by scientific experts, that there is no *influence* exerted on mundane affairs.

Yet thousands of persons still plant their root crops when the sign is down, and kill their pork and beef in the increase of the moon! Apple trees flowering while the moon is decreasing, produce little or no fruit, with many other beliefs of stellar influences, handed down by our ancestors. It can hardly be all "moonshine."

I keep a few pot plants, and my greatest bother is with insect pests. I use tobacco-smoke for *aphids* for plant lice—evaporate sulphur occasionally to destroy *red spiders*—hand pick the *mealy bugs.* Such are my usual remedies. Such treatment, if carefully attended to, will thin them out, yet there are always some left in embryo to stock the plants again in a short time.

Thus "eternal vigilance" is necessary to even keep these pests in check. Now if we fully comprehended the effects that the planets, (and especially the lunar orb, as being nearest our earth) may exert on vegetation as well as animals, possibly we might be aided in our experiments by the "starry hosts," in many ways—as "they were placed in the firmament for *signs*, for *seasons*, for *days* and for *years.*" So tells an old author.—*Still a Seeker after Truth.*

SUGAR AND ITS PRODUCTION.

Probably at no other time in the history of our country has the question of sugar production been more fully and more intelligently discussed than at the present time. The want of a greater variety in farm crops has something to do with this discussion, but the "power behind the throne" is the profit which it is supposedmay be derived from the production of sugar.

It is not our object to produce a treatise, or even an essay, but to barely glance at the sources from whence sugar is mostly derived.

The *Sugar Maple* has long been a source of production, but I do not suppose that one person out of every hundred in the United States has ever tasted maple sugar or maple syrup, much less used it in the way our regular sugar and syrup are used. There is no danger of over production, as few people will plant a maple grove and wait twenty or thirty years before any returns may be looked for.

The sugar cane of the South has been the source heretofore, from whence we have derived the bulk of our sugar. It produces the best and the sweetest sugar known, but unfortunately can be grown only in warm or tropical regions, and in our country is restricted to the States bordering on the Gulf of Mexico. It is usually grown from suckers or cuttings, and only when new stock is desired is it raised from seed. As the seed used is always imported seed, I suppose it does not ripen seed in this country.

Sorghum made a great stir in the Northern States a few years before the commencement of the late war, and large quantities of syrup were manufactured when our southern supply was cut off. After the war this industry declined and only in a few localities was there any notable amount raised. One reason of the decline was the raw taste of the syrup, but this could have been overcome by the use of a better system and improved machinery. The greatest and the real cause of the falling off, was the difficulty, almost impossibility, of making crystallized sugar from the syrup.

Of late, a variety has been produced that has a fair amount of crystallized (cane) sugar, and its cultivation again on an extended scale is quite probable. The business will this time be done in a more cautious manner and not as many disappointments be the result. The sugar is said to be equal to the regular cane sugar, and if the Early Amber sugar cane (sorghum) at all comes up to the claims made for it, another source of income will be at the command of our farmers.

It is also claimed that sugar can be made in paying quantities from corn stalks. That sugar exists in considerable quantities in the stalks before they become ripe has been known for a long time, and any one can readily test it by tasting the stalk which, is quite sweet, particularly about the time the grain is in the milky state. The sugar corn varieties have the greatest amount of saccharine matter, and as these are used for canning and drying just at the time when the stalk is in its best condition, the amount received from disposing the ears to the canning and drying companies would go a great way towards making the venture profitable. The only disagreeable feature about the case is, that the process of making the sugar is a secret, controlled by one man, but we have the comforting knowledge that sugar is beginning to be made from so many different things that the process must be either disposed at low rates to such parties as are willing to try it, or the man will not get anything for his discovery.

Beets are raising a breeze in many farming communities just now, and we believe the the successful manufacture of sugar from them will be of as much benefit to the American farmer as anything that has been brought forward in a long time. They require a good soil: the culture is simple but must be thoroughly done, and the crop generally proves remunerative.

But the greatest benefit to the farmer is that if he feeds the refuse of the beets, the dry pulp, to his stock, and applies the manure to the soil again, there will be little or no running down, as the sugar really takes no substance from the soil which it is necessary to replace. This may seem impossible, but when we consider that the constituents of sugar are carbon, hydrogen and oxygen, and that plants derive these all from the air, we perceive at once that this must be the case, and also the reason why the soil becomes more and more productive where the beet is grown for sugar.

Beet sugar is somewhat similar in its composition to cane sugar, but the two are not identical, as I believe five pounds of beet sugar are only equal to four pounds of cane sugar in its sweetening qualities. Thus if cane sugar was worth ten cents per pound, the same grade of beet sugar should be worth but eight cents.

There are many other vegetable productions that contain sugar in greater or less quantities, but which have not been utilized for the purpose of producing sugar, either because the sugar, when it was cane sugar, was not present in sufficient quantity, or if the sugar was present in considerable quantity it was what is known as grape sugar. The latter is the sugar that gives the sweet taste to honey and most fruits. Its sweetening qualities are very inferior to that of cane sugar.

At present there is an industry of considerable importance coming to the front which is regarded with great suspicion by many—we refer to the making of sugar out of starch. The manufacturers call it grape sugar or corn sugar, and as such it can be bought now in most large cities, and its composition is identical with the grape sugar of fruits or honey. Starch differs from grape sugar in having four atoms less of each of hydrogen and oxygen, which is in fact just equal to four molecules of water. The simplest explanation of its manufacture may be thus stated: The starch is slowly heated in very dilute sulphuric acid; lime is then added to this water, which uniting with the sulphuric acid settles to the bottom as sulphate of lime; the water is then evaporated until it comes to the granulating condition. When properly conducted the product is a solid cake of white grape sugar, but there are no proper crystals as in all forms of cane sugar.

The manufactruers claim that it is a wholesome product. The poorer qualities are, I believe, used pretty extensively in some places in the manufacture of beer. The better grades are used as a bee feed and in making candy. It is claimed by those opposed to its manufacture that it is used largely in adulterating grocery sugar, making the sugar appear of a better quality than it really is. I do not think that this adulteration should have any weight in making a protest against its manufacture, as we might just as well protest against the manufacture of crackers because the latter are ground up and used in adulterating pepper, or the raising of peas because they are roasted, ground and mixed among coffee. Leave everything to stand on its own merits and fight against the adulteration. It is also used in making common candy I believe, but as candies are made out of so many different things, only having sugar as a basis, I do not think it can be claimed as an adulterant, and is at least not harmful like terra alba. I believe in scientific works the grape sugar is termed glucose; by manufacturers the term glucose is applied to a heavy syrup which they also manufacture on the same principle. Both this and the sugar, like natural grape sugar, are very inferior in sweetening qualities to cane (grocery) sugar. —*A. B. K.*

SELECTIONS.

AN ACRE IN ONIONS.

Few farmers seem to realize the fact that as much money may be obtained from an acre of land in onions as from a forty-acre farm devoted to the usual crops. At present prime onions are worth $4 per barrel by the car-load and two hundred and fifty barrels may be, and not unfrequently are, produced from an acre of land. Let no one, however, expect to realize a thousand dollars from an acre of onions who does not pay the best attention to the crop. To begin with, land naturally adapted to producing the crop should be selected. Experiments made in the eastern States, where large quantities of onions are raised for the southern market, show that there is no better soil for onions than that of a reclaimed bog. Of course the land must be well drained and the surface soil decomposed by exposure to the action of the atmosphere. Most of our black prairie soils are suitable to the production of onions if they are rightly treated. The turf must become entirely rotted and mixed with the earth below. Land that has been in pasture for several years is easily prepared for a crop of onions, as the turf is comparatively thin, while the soil is quite free from weeds. That portion of a pasture in which cattle and sheep lie at night may be converted into an onion-patch to excellent advantage.

A field for onions should be very nearly level. If there are elevations in it the soil on them will be likely to wash away, carying off the seed it before germinates, or leaving part of the onions exposed to the sun. A piece of land intended for onions should be entirely free from the seeds of weeds in the start, and there should be a determination on the part of the grower to allow none to attain any considerable size. Absolutely clever culture is essential to producing a paying crop of onions. Neglect in this matter will cause a vast amount of work, which will not, after all, insure a good crop of onions. A field of onions can not be neglected on account of a demand for labor on other parts of the farm. Unless a farmer has help that can attend to his field of onions during the season of plowing corn, cutting grass, and harvesting grains, it will be better not to attempt to raise the crop at all. The care of onions, however calls for light work, which may be chiefly performed by old men, partial invalids, women and children. Persons who cannot perform heavy work on the farm may engage in onion raising to excellent advantage.

It is useless to undertake to raise a paying crop of onions on land that is not very highly manured. From thirty to fifty loads of manure should be applied to an acre of land designed for producing this crop. It should be well rotted and free from the seed of grass and weeds. Unleached ashes form a valuable addition to composted stable manure. After a piece of land has been prepared for onions it is best to continue the crop for a series of years. As onions are gross feeders it will, of course, be necessary to apply a coating of manure every season. The soil of an onion field should be well pulverized and the manure thoroughly incorporated with it. After it is plowed and harrowed a roller should be employed for crushing the lumps.

Many growers employ a hand-rake for fining the soil before the seed is sown. About four pounds of seed are required for an acre. It should be the product of the previous season. The seed may be tested by counting out a certain number and placing them on some moist cotton laid in a saucer. If good, it will germinate in three or four days. The seed should be sown as early in the spring as it is possible to prepare the land. Growers who aim to get the largest yield from a given amount of land allow only the space of a foot between the rows. There is a drill which plants two rows of onion seed at once. If sown by hand one seed should be dropped every inch. In order to mark the rows it is well to drop a radish seed every five or six inches. The radishes will grow very rapidly, and will be large enough to pull before the onions attain sufficient size to be injured by their presence. If there is no market for radishes in the vicinity, cabbage plants may be raised in their place. When of sufficient size they may be pulled and transplanted.

The cultivation of onions must be chiefly performed by means of hand tools. The shuffle hoe is the best implement for doing most of the work. It should be of the best quality, and great pains should be taken to keep it clean and sharp. After the plants are about four inches high they may be thinned so that each has a space of about three inches in which to grow. Some growers who seek to raise very large crops allow three onions to grow in the space of six inches. Of course they crowd each other after they become of nearly full size, but this setting is necessary to secure the maximum yield. After they are thinned to the proper distance nothing is required by way of cultivation except to keep the soil light and free from weeds.—*Chicago Times.*

FENCES AND FENCING.

I wish to say a few words with regard to the "*Barbed Wire* Fence" question. With all the figuring on this point, I find no showing describing how it is possible to build a *lawful* fence with wire. It would be a grand thing for the country if this could be done, *but it can not* unless 7 to 10 wires are used. Even then I doubt whether it would turn pigs, and any fence that won't do that, is not the thing for a majority of farmers to adopt. I could give you facts and figures to substantiate what I say, but do not wish to be tedious. I own a snug little farm of 82 acres here, and I have at least 10 different kinds of fencing on my place, "Barb Wire" included, so I know of what I speak. Whanever any man can show me how to build a wire fence that will be pig-proof, then I will adopt the plan, even if it cost one-half more to construct it, for in the long run it will be much cheaper than wood fences. Meantime, we must be content to get along the best way we can.

A Good Fence

can be constructed in either of the following ways—fence-boards 16 feet long; posts 8 feet apart:

3 boards and 2 wires.		*or 3 boards and 2 wires.*	
3½	inches to first board.	3	inches to first board.
6	inch fence-board	6	inch fence-board.
3½	inches to second board	3½	inches to second board.
6	inch fence-board.	6	inch fence-board.
6	inches space.	5	inches to third board.
6	inch board.	6	inch board.
10	inches to first wire.	9½	inches to first wire.
13	inches to second wire.	13	inches to second wire.
54	inches total height.	52	inches total height.

The law in this State (Wis.) requires fences to be 4½ feet high, or 54 inches, but I would be willing to risk a wire fence 50 inches in height, thus: 50 inches to top wire, 37 inches to next, 27 inches to next, 19 inches to next. The bottom space of 19 inches left can be managed this way: Make portable pieces of fencing by nailing two 4-inch wide fence-boards on to stakes, and driving them down at bottom; they can be taken up at pleasure. True, a fence of three or four wires will do for cattle and horses, and may be a good thing out in Texas or Colorado, and other Western States and Territories, but for general adoption it is not the thing, because you can not construct a perfect or lawful fence with it. As to the present forms of barb wire being dangerous to stock, I have only to state that whoever says so does not know what he is talking about. I have two horses that stick their heads over and between the top wires of my fence, only 11 inches apart, and crowd them down and reach at least a foot on the other side the fence, and eat the crop close to the ground, and I have seen cows do the same, and I use the Frentress Wire, which is, perhaps the severest kind manufactured.

There is not a single form of Barb Wire at present in use that is half *barbarous* enough. My stock have never received the least damage from the wire, and I don't believe they ever would, were the barbs ten times as severe; in fact we need a more severe barb wire introduced, and then we may hope to make a pig-tight fence by putting 3 or 4 wires pretty close together at the bottom of the fence.—*Robert Wood, in American Agriculturist.*

AMERICAN MERINO SHEEP.

Sheep-raising has formed an important part of the husbandry of most nations from the early historical times. Each country has had its peculiar breeds marked by characters, due in a great degree to the modifying influences of climate, and in part to a rude selection. In some cases these breeds have reached a high degree of development, while in other countries the flocks have shown no improvement for centuries. This country, young as it is, has made its contribution to the list of useful breeds, in the *American* Merino. Our climate and pastures have better satisfied the wants of this fine wool-bearing animal than those of its native country, and now the American Merino stands at the head of the fine-wool sheep of the world. This breed would seem to have reached that point in its development where it appears of but little use to try to further improve it. The first importations of Merino sheep into this country were made early in the present century, and consisted of very choice animals from the best families of Spain. The most extensive importations were those of Hon. Wm. Jarvis, the American Consul at Lisbon, in 1809 and 1810, who sent over nearly 4,000 head. From these Spanish sheep as a basis, and by means of careful crossing, breeding, and selecting from several

distinct flocks, the present Merino has been produced, and is now so unlike other Merinos as to take rank as a distinct breed with the prefix "American."

The sheep industry in the United States is vast and important, and in the consideration of which there are two partially distinct, and at the same time, interlocking interests. Sheep were in early times grown almost solely for their wool, and with the annual shearing came the year's income; but in later times, and never so prominently as now, the carcass is looked upon as an important item in sheep husbandry. Mutton as a cheap and acceptable meat has of late grown in popularity, and mutton now stands as one of the two important factors in the successful raising of sheep. In view of the fact that the Merino is essentially a wool-producing breed, with a fleece of the finest and best quality, it is evident that the pure-blood Merino, though it may supply our manufactories with the material for the finest of woollen goods, on the other hand it cannot satisfy the butcher. The sheep having to both feed and clothe its keeper, it is an important question: What is the best breed of sheep to do this? Evidently not the pure-blooded Merino. Though the growing of pure-blooded Merinos has its place, and an important one, and the demand for their wool indicates the prosperity of manufacture of the finest goods, it is in the crossing of them with other breeds in which the flesh-producing qualities predominate, that a sheep best for both meat and wool is produced. A crossbreed is the one that in most localities is to pay. The Merino is slow of growth and small of carcass when mature; but when crossed with a rapid grower, one that matures early, is a high feeder, and lays on flesh rapidly, but not remarkable for its wool either in quantity or quality, a sheep is obtained that pays for itself in its wool of prime quality, and furnishes a good quantity of mutton as a profit. Of such character are the crosses of the Merino with the Cotswold and the Southdown. But with the great mass of American sheep on the western plains, wool is the important product, and here the cross must be with the Merino upon the "Native"—a race of sheep which has grown out of a variety of early importations to this country—an intercrossing of various breeds in which many of the good points have been lost. In this field the Merino has a great work to do to raise the yield of wool 1, 2, or more pounds per head, and give it a higher value. The opportunity for the increase of our sheep interest is almost without limit, so far as favorable conditions of vast plains and healthful climate is concerned, and with our present large importations of woolen goods it is certain that no raw wood would lack for a market. There are many places where sheep may go and thrive that cattle and other live-stock dare not tread; and it should be the ambition of sheep-raisers to fill all these places with sheep adapted to these conditions, in the production of which the pure-blood Merino must find its full share of work. The revival in the sheep interest that is now in progress is both healthy and permanent. The surplus of woolen goods is exhausted, and the growing crop is in demand. The shipping of whole car loads of Merino rams to the flocks of the great West, with calls for more than the East can supply, is not in the nature of a "boom," but founded upon the demands of the time and the merits of the breed.—*American Agriculturist.*

THE ORIGIN OF THE POTATO.

The famine prevalent in Ireland is largely owing now, as in the past, to the failure of the potato crop, on which that unhappy land had so uniformly depended for food. It is singular that our common potato should be called Irish, because the bulk of the lower order of the Irish are accustomed at home to use it as the chief article of diet. While it is hard to decide where the potato is really indigenous, and where it has spread since its cultivation by man, it is a native of mountainous districts of tropical and subtropical America, probably from Chili to Mexico. It has been asserted that the first vegetable of the kind known to civilization was discovered in Patagonia; but the assertion has never been corroborated. Humboldt doubted if it had ever been found truly wild; but later travelers of high scientific reputation are satisfied on this point. The wild plant, except that the tubers are smaller, differs very little from the cultivated plant. The potato has been raised on this continent, and its tubers eaten from times long preceding the discovery of the western world. It seems to have been first taken to Europe in the beginning of the sixteenth century, by the Spaniards, from the vicinity of Quito. It extended from Spain to the Netherlands, France and Italy, but only as a curiosity, being confined to a few gardens. It long bore the same name as the batata, or sweet potato, which is the tuber meant by most Old World writers down to the middle of the seventeenth century. It appears to have been carried to Ireland from Virginia (1556) by Hawkins, a slave-trader, and to England 20 years later by Sir Francis Drake, without attracting much attention, until it was a third time exported from this country by the expedition sent out by Sir Walter Raleigh. Still, a long time passed before the potato began to be widely cultivated. It might be used to advantage, it was thought, for feeding cattle and swine and very poor people, and was finally raised with a view to prevent famines, especially in Ireland, where it was cultivated more extensively than in any other part of Europe. Not before the end of the eighteenth century was it generally introduced into France and Germany. Darwin noted the potato in the humid forests of the Chonos Archipelago and among the Central Chilian Mountains, where the rain does not fall sometimes for six consecutive months. It is closely related to the mandrake and deadly nightshade, and from its stems and leaves a potent narcotic may be extracted. The eating of potatoes was for a while forbidden in Burgundy, as they were thought to be poisonous, and the common people of England long cherished a prejudice against them. They are now used almost universally, and they and corn are considered two of the greatest gifts which this continent has furnished to the Old World. The potato really is and should be designated as the American potato.

WHAT SHALL WE RAISE?

The question above given interests every farmer, but especially those of us who live in the older portions of the country, where "farming don't pay," is so often asserted, and so often illustrated by those who assert it. The State Board of Agriculture of Massachusetts, held its winter meeting in the N. W. part of the State. Those of us who attended from other States, found much to interest and instruct. The excellent dairy show held at that time, has been described in "Among the Farmers." A most interesting part of the proceedings, was a paper on the Agriculture of Franklin Co., founded upon the U. S. Census of 1840, and the State Census of 1875, and pointed out the change that had taken place in the farm production, during 35 years. I wish that this paper could be read and considered, not only by every New England farmer, but by every farmer in all of the older States, where the farming of 50 years ago no longer "pays." The experience of the farmers in Franklin co., shows that if "the times" change, we must change with them, and if one crop does not pay, we must then grow another that will. It appears from the paper referred to, that there are only five crops cultivated in Franklin co., that show any substantial increase in the interval of 35 years. These are poultry, which rose from $9,678, to $31,155; hay increased from 43,853. 61,056 tons; tobacco, from 600 lbs. to 1,997,091 lbs.; dairy products, from $165,765, to $424,-042. Broom corn is a new crop in the county, and only amounted to 13,579 pounds. Besides these crops which have increased, neat cattle, horses, and corn show but a slight falling off, and may be considered fairly paying crops. There is great falling off in the number of sheep, but the large increase in their value per head, and in the value of lambs sold for market, would probably make sheep raising a paying industry. In nearly all other farm animals and crops, there is a large falling off in production, showing that farmers do not consider it profitable to raise them. Swine, wheat, and rye, have fallen off nearly 200 per cent., oats more than 300, and potatoes, 100 per cent. The increase in poultry is about 200 per cent., dairy products about 100, orchard products 500, and tobacco still larger. Franklin county is in the heart of the New England dairy region, and probably shows as fairly as any county, the drift of eastern agriculture. The fair inference is that farmers are abandoning these crops which show so large a decrease, because they are unprofitable. Agriculture in the older States, is in a transition state, and we are slowly feeling our way to a better husbandry. The progress is very slow, but we are confident it is very sure. So much light is breaking out from our agricultural journals, our State and County Fairs, and our Farmer's Conventions, that we can not always grow crops that run us in debt, because our fathers grew them. We must inevitably get out of the ruts. Nothing could show more clearly than these statistics, the folly of raising crops that do not pay. Pork raising for the general market, does not pay, and it has fallen off 200 per cent. in 35 years. Why, then, should we undertake to raise any more pork, than will supply the family? The raising of poultry does pay, for it has increased 200 per cent. Why should we not invest our capital and labor in that which experience shows pays well. A farmer with a good range, can raise a ton of pork. The ton of pork would be worth in the village market this year, about six cents a pound, or $120.00 a ton. The turkey, eighteen cents, or $360.00. Why not raise turkeys? And so, of the other things that are proved to be profitable. Let us get out of the ruts, and raise those crops promptly called for. Farmers should keep a keen eye on the markets, see which way the popular taste is tending, and plant, sow, breed, and in every way plan to meet the demands of the times.—*American Agriculturist.*

[The writer of the above probably understands farming a good deal better than he does arithmetic or per centage. To say that a crop has fallen off 200 per cent. is equivolent to saying that a man who raised 100 bushels of wheat last year raised 200 bushels less this year than last, and is absurd. If a crop of 100 bushels one year falls off to one bushel the next the decrease is 99 per cent. and more than 100 per cent. it cannot diminish, for 100 is the whole of it.—ED. FARMER.]

FARMER AND GARDENER.

Ground-nut Growing Again.

Raising ground-nuts in this state is again recommended by those who know nothing about growing them. It has often been tried, and every experiment we ever heard of was the same—an utter failure. We have tried it ourselves, giving it personal attention, and produced larger and finer looking nuts than we ever saw in the Philadelphia market. But when they were opened there was nothing there! Southern Jersey soil might be adapted to growing them; but the ground or pea-nut is a Southern fruit, and those who attempt to grow them will have their labor for their pains.

Raising ground-nuts in Pennsylvania, and in this latitude, is on par with raising upland cranberries and whortleberries in gardens, and figs upon the farm. Common sense, without going to the expense of experimenting, ought to teach every one its impracticability.

Tobacco-Growing.

This is the mania, just now, in a number of counties in this state, and as it produces good profits—more, it is claimed, than many of the

regular farm crops—some people who have written against the use of the "dirty thing," are quietly growing it for others to use. Some years ago a person in Bucks county, who denounced it roundly, as he did many other matters that did not square with his eccentric ideas, was the first to apply to us for a couple of papers of the "Havana" seed, and which was said to produce large and very profitable crops, for his own planting! One question in regard to tobacco-growing may be taken for granted, to wit: that, like all other products, whether of the shop or farm, there will sooner or later be a supply equal to the demand, and a little more, when any excess of profits over other results of labor will become equalized. Just now, though tobacco-growing may yield more profit than most other crops of the farm, notwithstanding that it is a great exhauster of the soil, it will not divert so much of the attention of the thoughtful farmer as to interfere with his regular routine crops, which he can produce without having his conscience twitted with his work, as some may with tobacco.

Look to the Roads.

Road graders are getting very much in use in the West, where factories for their exclusive construction are in operation. If they are good machines they do the work well and rapidly and at so much less cost than the old slow-going method as quickly to run it out of practice when once tried. Good roads are a great blessings to man and beast. The traveler in passing along over a fine road at once sets down the population as far ahead in their civilation and social science to those of other sections where the roads are either neglected or regarded as of secondary importance in the routine duties of every day life. We have noticed several instances where there has been much effort and contention to have a new road opened, and a good deal of money expended in getting the matter favorably through the county court, which, when opened, is allowed to remain, in view of the petty cost of it, only half graded, the gutters only half made, with stumps and rocks lying almost in the centre of the bed admitting of barely room enough for a single vehicle to pass. The gutters, too, instead of being made straight and serviceable, are made to run round these obstructions, which causes them to dam up with weeds, dirt, &c., so as to throw the water upon the road bed, washing it into h les, which prove dangerous to horses and wagons.

Transplanting.

In transplanting trees the care should begin in lifting them in the nursery. In the hurry of the season—for the transplanting season is short—sometimes the proper care cannot be given in taking them up. Hence, it is the best plan, where it is allowed, for the purchaser to dig up his own trees. They should then be protected against the sun in hauling them home, and should be "heeled-in"—that is, the roots to be covered with earth, until the holes are dug and ready to receive the trees, and then set as the holes are prepared for them. The holes should be dug wide enough to receive all the roots spread out, except perhaps a few of the larger ones, and deep enough—and a few inches to spare, which should be loosened well—so that the tree may stand a little deeper than it stood in the nursery. Where the tree has grown rapidly in the nursery, and the branches are long, we recommend pruning, whatever may be said by some to the contrary. The soil with which the holes are filled up should be rich, whether it be the soil taken out or brought from elsewhere. Let the ground around the tree be pretty firmly pressed, and left rather bowled, and then mulch with rich stable-manure, which should be repeated once or twice through the season if the weather should be rather dry. It is not advisable to water much, if any, around the tree when planted; but where the soil is rather dry it should be moistened before it is returned to the hole.

Land-Owning in Europe.

Reading some of the editorials in agricultural periodicals about farming and farmers in Europe, we see that the idea is held up that it is next to impossible for a poor man ever to become able to own land. On the contrary, they say that, even what he earns by his daily labor is wrested from him by his rapacious landlord. Now it is very true that land is dearer in most countries of Europe than it is here even in the Middle States; yet it is also true that in no nation in the world are there more land-owners for the population than in France, Germany, Austria, Italy, Holland and Belgium come next. In Ireland it is more difficult than elsewhere to own land; but it is principally for the reason that the Irish are less thrifty and ambitious, and have been so long so as to allow what land they did possess to slip out of their hands into the hands of others who were able to purchase it. Whisky-drinking has had most to do with this. The Irish, it is true, are an industrious people, and barring this weakness would do well enough if the land and the tenant laws were all that they ought to be. It is probable, however, now that the Liberals are in power again, that something will be done of a solid, practical nature in their behalf. It is difficult to guard against famine. A few years ago here in our own country—Kansas, Nebraska, &c.—the farmers suffered terribly from the attacks of the potato beetle, grasshoppers, &c., and required help to be sent to them.—*Germantown Telegraph.*

FARMERS WHO ARE NOT FARMERS.

If we look around at those from whom come the strongest complaints about no profit in farming, we see that in a surprisingly large number of cries the cry comes from those who know nothing about it; that is to say, it is not real genuine farmers who complain, but some counting-house graduate who had an idea that money grew in the ground, that business was a hazarous operation, and that to get rich and "live like a prince, with nothing to do," all that is necessary is buy and "run" a farm. Some few of these men succeed in the end. For a year or two they lose money, but in time they pick up or luck helps them. It is, however, but a drop in the bucket. Hardly ten per cent. of those who go from commercial pursuits to farming but sooner or later break up.

We suppose a great deal of this misdirection of genius comes from the influence of old country literature. The "gentleman farmer" is one of the happiest of English pictures, but whether it is true to nature or not is altogether another thing. The typical John Bull of the caricaturists is an English farmer, fat and jolly, with top boots and fine substantial clothes, and generally having his hands thrust deep down into his breeches pockets as if in them he guarded not only his own treasures but those of all the world. But it appears the picture is a purely imaginary one. The "gentlemen" are not the solid substantial farmers. There are a few who took to farming after they became rich and had made their money first by some other business; but most of the successful farmers there as well as here are those who were brought up to farming from their boyhood and who are familiar with all the details of farm work and farm-markets.

It is a pity perhaps to take down all these lovely pictures of the gentleman farmer and in their places substitute mere charcoal sketches of what things really are; but poetry is all well enough in its place. Money-making is another thing, and money-making by farm-life especially so. It has its bare, practical side. One must begin at the bottom of the ladder in order to reach to the top; but when began in that, the natural way, it will be found to be just as good as any other business, and when the failures come it will be found generally with a class who had no right to be there.—*Germantown Telegraph.*

POUDRETTE.

The Reading *Eagle* says that Daniel D. Hess & Son, of Quarryville, have their poudrette works near that city started and in running order. Their product will be made from night soil, sulphate of potash, vitriol and land plaster mixed. The capacity of the mill is four to five tons in 24 hours. The main building is a frame structure 30 by 60 feet, drying house 10 by 46 feet, the engine-house is 14 by 22 feet, and the store-houses 30 by 24 feet. The engine-house is supplied with a boiler and engine of 15-horse power to drive the "refiner" and elevators. The refiner has somewhat the appearance of a grain threshing machine. In the main building are half-a-dozen bins 13½ feet long by 9 feet wide, and 3½ feet deep on an average, the floors of the bins being inclined, and in the drying-house are four furnaces.

In the manufacture of the poudrette the night soil is first passed through wooden screens into the bins with the aid of a small quantity of water thrown upon it with a hose. While in the bins 50 pounds of vitriol and 500 pounds of sulphate of potash are added to each ton of night soil. It is then allowed to run from the bins into the drying-house, where it is spread out evenly upon the floor of the kiln and repeatedly worked over while being heated and dried. 12 to 15 hours' time are required to dry it. While in the kiln, 50 to 100 pounds of land plaster to ton are added. After being thoroughly mixed and dried, the poudrette is passed through the refiner, a machine with strong iron teeth. A fine and a coarse sieve are attached to the refiner, and the poudrette that is not sufficiently pulverized to pass through the fine sieve falls through the coarse one and is immediately carried back by an elevator into the refiner. That which fall through the fine sieve is carried away by another elevator into the store-room, ready to be placed in bags for shipment to market. The manufactory is supplied with coal and hot water. Steam pipes lead to each bin, so that the exhaust steam from the engine can be conducted into them and keep the contents from freezing. The fertilizer has very much the appearance of fine dark sand, and is free from any unpleasant odor, having less smell than either guano or the phosphates. Outside of the mill there is no odor, and there is very little in it when the bins are closed. In a stone quarry near by are several hundred cart loads of night soil disinfected with lime, which will be converted into poudrette in summer when the moonlight mechanics are not at work. During the winter it is expected that from eight to twelve loads will be received every night from the night-soilers, who have a large field of operations in Reading, where there is no sewerage.

THE WAGES OF FARM LABOR.

This is the time of the year when labor on the farm is the question of the hour. It has been said that among the drawbacks to intelligent agriculture in our country is the uncertain tenure of the soil. The farmer who rents does nothing permanently because he may leave the next year and the farmer who owns knows not at what moment he may sell. There are many who make a permanent busi- of the farm, but there are thousands who do not; and these keep down the average of good culture.

But it seems to us if evanescent settling is an injury to farming, the frequent change of labor is at least as bad. The agricultural laborer, as a general thing, is employed for about nine months in the year. In the spring he is to be looked after, and before he is secured numberless little matters, which result in great moment after awhile, are left undone till the help comes, when it is too late to do them properly for the best results for that season.

Where farms are large enough to afford it, and those who farm are engaged in a life pursuit, the best results have been found to follow from so managing as to have the help em-

ployed all the year round; and all the better if such help be married, and can be comfortably domiciled in tenant houses on the ground. Advantage can thus be taken of every turn of good weather to get the work done at the proper moment, to the great benefit of the subsequent crop. Moreover a man regularly employed is likely to take more interest in his work than one who knows he is but temporary, and the employer has more chance to bear patiently with the man while both are learning one another's ways.

There is, beside the absolute question of labor at this season, another which always troubles one, namely, that one of wages. The carpenter for instance who gets in the city $2.50 to $3 per day, has to pay perhaps $16 or $18 per month for house-rent, while provisions of every kind have to be purchased, and often at high rates. Even the smallest scrap of fuel has to be bought, and there is nothing but what costs hard cash to get it. A hand on a farm, especially if he is comfortably tenanted, has less rent, less expense in provisions, and less demand on his wages in every way, and this should always enter into calculations as to the worth of services. Even when the single man is boarded in the family, it is still about the same. Sixteen dollars per month and board in a family on a farm is better for the hand than $1.50 without any other privileges, in a city, as any single young man who has tried the difference can readily testify to.

It is not therefore a fair comparison between the actual cash of the city and the cash wages of the country. Nominally less, the result is generally greater, and this result should be the basis of calculations. There is no doubt, however, that we lose much by transitory labor, and it will be wise for all who can to make such arrangements as will enable the laborer to be steadily employed the whole year.—*Germantown Telegraph.*

NEATNESS AT THE BARN.

It is not necessary for the farmer to build a highly ornamental edifice in order to have a neat and attractive appearance in his barn and about his barnyard. Specimens of neatness and purity are sometimes seen where the owner could afford only cheap and imperfect structures. The management depends on the man, not so much on the character of his buildings. Nevertheless, when the owner takes the pains and incurs the expense of finished erections, he will be more likely to feel an interest in keeping every thing in and about them in good condition.

It must be confessed that there is great room for improvement in the majority of farmers in this country, although much progress has been made, and a number—happily a large number—are models in this respect. We have seen barns and stables kept as neat as a parlor. Some men think this is attended with too much trouble and labor—like the boy who combed his hair once a month, and finding it difficult and painful, was unable to comprehend how any one could endure to do it every day. It is not the process of *cleaning* that we recommend, but *keeping* clean. A nurseryman was asked how he killed the weeds in his 35-acre grounds. "I do not kill them," was his answer; "I allow none to enter or grow."

We mention a few examples of deficient care in this particular. Among good managers, the common recommendation and use of manure cellars is a frequent cause of foul air, which more or less pervades the building, injures the sweetness of the hay, and compels cattle and horses to breathe noxious odors. Manure should never be kept in a barn basement without the constant use of absorbents, in the shape of straw, chopped stalks, sand or dry peat, to hold all the effluvia. The difficulty will be much lessened as farmers learn the advantages of drawing and spreading manure in winter, as we have frequently recommended. But care is necessary, even for the small daily accumulation.

No animal is so badly abused as the pig, in being thrust into apartments which are permitted to become polluted from neglect. The hired man, to whom we gave the pigs in charge, thought it a great hardship that we required him to clean their floor thoroughly twice a day. But he ultimately found it much the easiest in the long run, as each daily cleaning was a mere nothing. Pigs are naturally clean, if they are only permitted to be so, and when comfortably provided for, thrive better and fatten faster; and one would think the farmer would prefer to eat such pork to that taken out of a manure hole.

Sweep the barn floor often, sweep out the horse stalls at least twice a day, provide clean and dry litter for all animals, give them pure water, let their food be sweet and nourishing, avoid all fetid accumulations, shelter your barn yard from cold winds by evergreens, and keep every square foot of ground about your building free from offensive rubbish, and you will not only preserve more self-respect for this care, but will enjoy the pleasure of giving comfort to the living creatures under your control, and what is not least in the eyes of money-making managers, you will derive a greater profit, preserve your buildings from decay, and have a place that will sell at a higher price if you should wish to dispose of it.

BEEF AND MUTTON.

While there has been a falling off in prices in America in nearly all the range of agricultural products in the last few years, beef and mutton have maintained theirs. Since 1875, when the exportation of meats to England commenced, there has been no special change in values. The average export price of fresh beef since 1875 has been about 9¼ cents the year through. It was the past summer on the average one-half cent higher than the summer of 1878. But it is always lower from the first of May to October than in the other cooler or winter months, from October 1st to May 1st. Thus, while the average through the year has been for four years, about 9¼ cents, it goes down to 8¾, or a trifle less in mid-summer, and in July last was 8⅝. Yet in July, 1878, it was 8¾, a difference of a half cent in favor of 1879. This steadiness in prices of fresh beef, amid all the depression in England for the last three years, shows that the trade will, in improved times in that country, insure a rise of the average. In all probability the lowest prices have been seen. The iron trade of England is improving, and the shipping movement is largely increasing there. This means general improvement in trade. Yet in the nature of things there can be no agricultural improvements in England until rent, taxes and all present charges on land and its productions shall be made. England, with her abundant, efficient, and cheap shipping will place the agricultural products of every clime in her ports at less than she can under her present system grow them, and especially wheat, barley, oats, beans, and indeed even hay. Her wealth in ships has doomed her land to low rates both in selling prices and in renting values. It is only a question of time when she will realize it, and act on the inevitable. On a proper system England can feed twice the people which her land now does, and the sooner she gets to that system the better. Then her land will be productive and her people better off. But this implies a downfall of her present system, and the land-holder of this period will fight the change, until the force of new circumstances shall defeat him.—*Kentucky Live Stock Record.*

VALUE OF BUTTER PACKAGE.

The following is from a paper read at the National Butter Association:

We have come to a period in the history of butter making in this country which must, of necessity, be considered on broad grounds. So long as the traffic relating to it was a home huckstering business, not yet grown to the necessity of prominent identity, it did not demand a commercial status, like other articles, which were largely exported, well comprended, and intelligently reported by all the markets of the world with which this country has to do; consequently each locality, so to speak, could afford to indulge in its own peculiar twangs and local tastes, so as to be suitable and popular alike for the home and export trades.

We now come to the point so well understood by many of our advanced western creamery men who have for some time realized a reward for making the finest butter in the world, generally very free from deleterious substances, and for adopting a style of package of the most popular character, in all of the principal markets to which our dairy product is transported, namely, the fifty and sixty pounds Welsh tub.

We feel constrained, right here, to further compliment these creamery men for their intelligence, skill and achievements, and recommend the butter making dairymen of the entire west to organize and do likewise, by which we shall arrive at that most desired end, namely, high quality, uniformity of quality, desirability of package, and uniformity of package; thus reaching that comprehensive regularity and reliability so much needed in the preparation of all articles which must necessarily have a wide commerce at home and abroad.

The variety of quality and variety of package has heretofore rendered the butter trade a mystery, save to a few in daily contact with it. If all of the butter manufactured in this country could be made in creameries under the most approved scientific system, and by law compelled to be packed in tubs of uniform style and size, holding fifty or sixty pounds net, we are fully of the opinion that our foreign commerce in this article would be doubled in a short time.

CRABS AND THEIR HABITS.

Dr. W. K. Brooks, of the biological department of the Johns Hopkins University, delivered the first of a series of three lectures in Hopkins Hall recently, on the structure, habits and developments of the crab and the oyster. The lecturer's subject was "The Crab, its Habits and Developments." After drawing on a board in view of his audience a sketch of the crab, Dr. Brooks proceeded to explain the structure of its claws, fins, etc. In the rock crab, he said, the first, second, third and fourth fins are alike. In the edible crab, however, the fourth fin differs from the others in that it is used for locomotive purposes rather than for offence, defense, or gathering the food. The fourth fin, it has been said, is used by the crab for opening oysters, hence its being likened to an oyster knife. On the back of the crab is found a peculiar shield-like shell, which protects the gills, usually called by fishermen "dead men." This shield in male crabs is sharp, spear-pointed and small, in females it is more rounded and larger. The teeth of the two large claws of a crab are rarely ever exactly alike. Usually one set of claw-teeth is blunt and rounded, generally used to crush food-fish, insects, etc., and the other is sharp and used to cut and tear with. In every other respect the crab is perfectly symmetrical.

The shell of the crab, like the human skeleton, is the frame-work upon which all the other structure depends. There is this difference between a crab-shell and a human skeleton, however: While the human body grows the human skeleton grows with it, but the crab-shell never grows. It increases in size, breadth, etc., by the addition from time to time of little liquid particles natural to the crab, which pour from it very much as perspiration pours from the human body. The claws and fins of a crab are so constructed that if moved obliquely they will be fractured. They are, therefore, always moved backward, forward, up and down or circuitously. It is a common belief among fishermen that crabs always shed during a full moon. It sounds rather singular, but yet this idea, he thought, is based upon fact, and they were all aware that the tide flows during a full moon. Yet

if they would take the trouble to notice the coast of our own bay during a full tide they would find that the bushes and marshes for several feet above the coast line are submerged in water. Now it is an acknowledged fact that crabs, when being divested of their outer shells, seek a hiding place in tall grass, bushes and marshes, away from their natural enemy, sword-fish, hard-shell crabs, etc. May it not then have been ordained by an All-wise Providence that these crustacean delicacies should shed their shells at a period when the tide and the grasses conspire to aid them in their march after a safe hiding place? If so, this idea of the fishermen is, after all, not so absurd. Crabs, like insects, shed their shells in a singular manner. It is not easy for a crab to squeeze its muscles, segments, etc. through its sternum. A happy expedient, therefore, has been hit upon by nature for effecting a shedding of shell. A crab in shedding drives the blood from its lower portion by a natural process into its claws, fins, etc. Then the muscles of its lower portions being contracted and thereby decreased in size, it is pulled through the sternum. After being freed the blood is again driven back to the freed muscles and those confined being contracted are liberated in turn. A claw taken from a crab, it matters not at what joint, is nearly always replaced by a second growth. The hermit crab is a crustacean, much smaller than the edible crab, which inhabits a snail shell. This crab enters a shell, and if it be filled with dirt, it cleans it out; if inhabited by a smaller hermit crab it cleans it out also [laughter;] and if held by an enemy superior to it in valor, it gets cleaned out itself. [Laughter.] It seems to be the natural tendency of this animal to be always looking for a new shell. Its claws protrude from the shell from place to place. If it be travelling along in the water and it sees another shell, it seizes it at once and proceeds to inspect it. He enters it, and if occupied the pantomime, as before described is enacted, if not he takes possession, and proceeds to see whether it will suit him or not. He carries on a comparative inspection, goes from the new shell to his own to see which he likes best, gets out of the new one and lets it drop in the water to test it before making the exchange.

FARMERS' RETURNS TO CENSUS TAKERS.

The farmers must look out for the census taker, who will begin his round on the first of next June, and must complete them within the month. The returns required of them will of course be for the year 1879, for the cereals, beans, peas, rice, tobacco, cotton, fruits of all kinds, hay, clover, grass-seed, hemp, flax, honey, sugar-cane, sorghum, and, in short, everything harvested in the fall. The returns for the portion of 1880 will include maple-sugar and molasses, and wool clipped chiefly in the spring, except in Southern California, Texas and some of the other Southern States, where two clippings a year are obtained. For certain agricultural products there is no regular harvest, for they are gathered as they mature, week by week, and day by day. These comprise butter, cheese, milk sold, value of animals slaughtered, yield of market gardens, timber of all kinds and home manufactures. The returns must be made as accurate as possible, but will be very little labor to the careful farmer.

INFORMATION FOR ALL WHO BREATHE.

If there is any one thing that the average amateur ventilator is more sure of than another, it is that carbonic acid gas is the principel evil to be guarded against.

When he writes his first paper on the subject, he will enlarge upon the "deadly nature of this subtle poison," and will refer to the Black Hole of Calcutta as proving its powers. He will also in the same paper announce his discovery that "this deadly gas is heavy and collects near the floor," and that, therefore, special arrangements should be made to remove it from that point. He may also indulge in some speculations as to the well-known great mortality among children under five years of age being due to the fact that they are so short, that their faces are constantly bathed in this pool of heavy gas, and he will allude in a familiar manner to the Grotto del Cane.

If he happens to be an architect he may even proceed to put his theory to a practical test, for I have seen, in two large and costly buildings, holes carefully provided at the level of the floor to allow this terrible carbonic acid gas to run off.

Now, all this is nonsense; and until you know enough of the physics of gases in general, and of carbonic acid gas in particular, to be sure that it *is* nonsense, and to be able to demonstrate *why* it is so, it is useless to discuss ventilation problems with you. Let us assume that what little you ever knew about this subject you have forgotten, and then note a few of the characteristics of gases in particular.

The Great Air-Ocean We Live In.

The atmosphere which surrounds us like an ocean, at the bottom of which you are to construct your buildings, is composed of three gases, viz.: oxygen, nitrogen and carbonic acid. These gases are mixed in varying proportions, the amount of carbonic acid being very small. The mixture is a very perfect one, although these gases have each a different weight for the same bulk, and this uniformity of mixture depends upon what is known as the law of the diffusion of gases. Every gas expands freely and rapidly into a space occupied by another gas, much as if this space were a vacuum. If you take a tall glass jar and introduce at the bottom some pure carbonic acid gas, leaving ordinary atmosphere air above, and close the jar, you will find in a short time that the carbonic acid has diffused upwards and the air downwards, until the composition of the mixture is exactly the same in all parts. Observe, also, that this mixture will never separate again, unless you compel such separation by placing in it some substance which will combine with or absorb one of the gases and not the others.

In our ocean of air, the proportion of carbonic acid to the other gases is the same at a point ten miles above the earth as it is on the sea level, just as the proportion of salt in the ocean is the same at one foot below the surface as it is at one mile depth.

The same is the case with an inhabited room; the proportion of carbonic acid at the floor will be about the same, and in some cases less, than at the ceiling, depending upon the currents in the room, and upon the fact that the principel sources by which the proportion of this gas is increased in a room, viz.: respiration and lights produce it usually in a mixture at a higher temperature than that of the room, and weighing less than the same bulk of ordinary air. For this reason it rises; and by the time it has cooled it is thoroughly diffused through and mixed with the rest of the air of the room, from which, as just explained, it will not separate.

The Only Exception to the General Rule.

If carbonic acid is produced rapidly in a space enclosed on all sides except at the top—as for instance in a well or shaft of a mine, or in a large empty beer or wine vat—it will expel the air and remain at the bottom of the space until diffusion has been accomplished. When in such a case the temperature of the carbonic acid gas is the same as that of the surrounding air, so that no currents are produced, the process of the diffusion is slow; and if a slight production of carbonic acid gas be kept up from below, it will remain almost like water in a barrel, as it does in the Grotto del Cane and in the places above referred to. It is only under such circumstances however, that it is ever necessary to make special provision for getting rid of carbonic acid gas; and it is not probable that you will ever have occasion to make any such arrangements for its disposal.

In what would be termed "pure country air," carbonic acid is present in the proportion of about 4 parts in 10,000. In a crowded and confined space, such as the pit of a theatre and in some school-rooms, its proportion has been found to rise to 30, 40 and even 100 parts per 10,000.

Pure carbonic acid gas may be present in air in a proportion as high as 150 parts per 10,000 without producing discomfort or giving any special evidence of its presence, as for instance in those establishments where sparkling mineral waters are bottled, or soda fountains are charged, or in vaults where champagne is bottled, in certain rooms in breweries, or in some celebrated baths and health resorts.

It is evident, therefore, that carbonic acid gas—in the proportions in which we find it in our worst ventilated rooms—is not in itself a dangerous impurity; in fact, we have no evidence to show that in such proportions it is even injurious.

Dangerous Because Found in Bad Company.

What, then, is the importance of this gas in relation to questions of ventilation? And why do sanitarians lay so much stress upon the results of chemical tests of air with reference to this body, and on what may seem very small variations in the proportions in which it is present?

It is because carbonic acid is usually found in very bad company, and that variations in its amount to the extent of three or four parts in ten thousand indicate corresponding variations in the amount of those gases, vapors, and suspended particles which are really offensive and dangerous, and because we have tests by which we can with comparative ease and certainty determine the variations in the carbonic acid, while we have no such tests of recognized practical utility for such other dangerous impurities.

As a matter of convenience, therefore, we measure the carbonic acid, and thus get a measure of the extent to which ventilation is being effected. Of course we must make sure that the circumstances of the case present nothing unusual, since, on the one hand, carbonic acid may be present in great excess—as in a soda fountain charging room—without indicating great impurity; and, on the other, it is possible that the air of a room may be very dangerous, from suspended organic particles, and yet have carbonic acid present in merely normal amount.

Perhaps it seems to you that all this is of little interest to a "practical architect," but, unless you know it very thoroughly indeed, I fear that the formulas and specifications for ventilation which you desire to learn will not be of much use to you.

AGRICULTURE IN THE SCHOOLS.

In some of the Western States they are moving to have the principles of agriculture and horticulture taught in the public schools.

If there are not too many things taught at once in this way already, there would be good results from such a course. But at present every one who has had experience believes that enough is taught now for the pupil's good. In this State, at least, the children are taught such a variety of branches that the regular school hours are not sufficient, and the children have to spend most of the afternoon, and best part of the evening afterward, in learning the lessons for to-morrow. The hardy and health-giving exercise of play has hardly any time allowed it to perform the necessary part of making a vigorous body for the mind's dwelling-place; and thus the great school efforts result in much less practical good than the simple education of the past age.

But we think there is one way in which some good might result from some such an education as that proposed. Instead of having horticulture and agriculture taught regularly in the schools, have a set day or half a-day say every month for a visit to some farm or garden, and there with practical results of the garden and held before them let

practical men explain to various classes, or to the whole school if it be not very large, how all they see have been accomplished. For this purpose it would not do to have regular professors explain things, for they would in very few instances be able to give a rational explanation of what they saw; but practical men themselves who have been daily engaged in these pursuits. They would not perhaps be able at once to express themselves as eloquently as the regular teachers, but they would soon be able to do it understandingly, and that would accomplish the whole object.

We know that the great majority of these practical men think they cannot speak. It is the great astonishment that whenever a meeting of agriculturists in our country districts is held, so many excellent men who could tell a great deal, say nothing. They think they cannot; but this is not so. We see the same men as teachers of morality, and the principles of religion in Sunday schools and the church-meetings, and generally with great benefit to the young whom they address, quite as profitably in fact as the ministers themselves, who have had the benefit of a college education. It is not to be doubted that they could tell quite as good a story about their every-day occupations to schools in the way we have suggested, as they can in the church meetings or religious gatherings.

If something of this kind could be done, we think agricultural and horticultural education might be made feasible, in so far as the main elements are concerned. The change itself from the routine course of the schools would have a great influence on the health of the children, and a change which would re-act favorably on the mental capacity to retain the instruction in other things imparted day by day. More than this there are many ways in which such a system would act for good, not only on the taught, but on the teachers also.—*Germantown Telegraph.*

EXCELLENT GLYCERINE OINTMENT.

A very good preparation of glycerine to have always on hand, can be readily prepared by any apothecary or druggist: In two ounces of sweet oil of almonds, melt, by a slow heat, half an ounce of spermaceti, and one drachm of white wax. Then add one ounce of good glycerine, stirring until cold. When cold, scent it by stirring in well a *little* oil of roses. Keep in small jars, or small wide-necked bottles. In hot weather keep closely corked, as it sometimes gets a little rancid if long exposed to warmth. Half or a fourth of the above quantities may be used. Every drug store should keep a jar of it, and recommend its use. It is excellent for softening the skin, for most injured skin surfaces that are not open sores; for chafed places, for moistening corns or callused feet or toes, and especially for chapped face, lips, or hands. When the hands are chapped or cracked, or roughened by cold, wash them clean with soap, and rub them well with this glycerine ointment, wiping it off enough to prevent soiling clothing. If this is done at night, the hands will be soft and in good condition in the morning, except when deeply cracked. It is very good to apply to the hands after "washing day." This is an excellent preparation to use by those afflicted with the distressing trouble known as hemorrhoids or piles.—*American Agriculturist.*

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The Agricultural and Horticultural Society met statedly in their room over the City Hall Monday afternoon, May 3rd, at two o'clock, J. F. Witmer, president, in the chair.

The following members and visitors were present: Frank R. Diffenderffer, city; William Griest, city; J. M. Johnston, city; C. A. Gast, city; Levi S. Reist, Manheim; Peter S. Reist; Lititz; H. M. Engle, Marietta; J. C. Linville, Gap; Calvin Cooper, Bird-in-Hand; M. D. Kendig, Cresswell, Joseph F. Witmer, Paradise, W. H. Bollinger, Warwick; Jonas Buckwalter, East Lampeter; A. L. Eshleman, Paradise; Dr. C. A. Greene, city; Dr. Compton, city; Johnson Miller, Warwick; W. L. Hershey, Chickies; J. G. Resh, Pequea; W. H. Brosius, Drumore; John H. Landis, Millersville; C. L. Hunsecker, Manheim; Peter Hershey, city; Dr. S. S. Rathvon, city; Israel Landis, city; Ephraim S. Hoover, Manheim; J. Hoffman Hershey, West Hempfield, Jacob B. Garber, Mountville; A. D. Hostetter, Millersville.

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

The chairman of the Board of Managers reported that the board had held several sessions for the purpose of preparing a premium list for exhibitors at the coming fair. The list was partially completed, and it would be finished to-day.

The committee appointed to audit the accounts of the late treasurer of the society, reported him to have a balance in his hands due the society of $68.99.

Mr. Reist reported a promising harvest for seeds and fruits. Everything looks well, and apple trees that have not bloomed for several years are now covered with flowers. It is too early to give an opinion as to small fruits, but it is thought they will turn out fair.

Mr. Engle said that the grain and fruit crops are really very promising. The grass crop also promises to turn out well. Apples never bloomed finer. Pears are not so profuse as a year ago, but a good crop may be looked for. Oats looks very promising. The rainfall for April was 2¼ inches. In March the fall was three and one-sixteenth inches.

Mr. Linville said that the wheat looked remarkably fine, but he thought in some fields it was growing too fast. The peaches, so far as he could see, were all killed. Cherries promise very well. The prospect for a good crop of apples is promising.

Mr. Miller said that the condition of things in Warwick township was favorable in regard to the crops. The fruit trees are now in bloom, and the indications are very encouraging for a good crop of fruit.

Calvin Cooper said his experience was the same as the preceding gentleman as regards the crops.

Mr. Kendig said the young tobacco plants had survived the extreme cold in March, although out of doors at the time.

Mr. Engle observed the same thing in reference to other small plants. He thought the reason for this was because of the continued cold weather, which caused them to become more hardy.

Mr. Resh thought the tobacco plants were a little late, and he attributed this state of affairs to the cold weather.

Dr. C. A. Creene read the following essay upon the subject of poultry raising:

For forty years, with occasional interruptions, it has been my fortune (as boy and man,) to care for poultry, and some experiences I have gathered during these years I propose now to make public for all who are interested in the matter, and for convenience sake I will arrange the facts under different heads:

1. Hens, if properly kept, are a source of profit and comfort to the owner.

2. The eggs can be increased in size and richness by proper feeding of the fowls.

3. They require a variety of food, and get excessively tired of one kind.

4. The egg contains almost all the constituents of the human body, and hence the hen must have a variety of food to construct it.

5. No other product of animal or vegetable life contains substances exactly like the albumen and yolk of an egg.

6. The hen ceases laying when improperly fed, or when in a diseased condition.

7. They require a warm, clean, properly ventilated house for winter months.

8. If by neglect vermin infest the bird roosts and house they should at once be removed, as they are deleterious to the health of these friends of man.

9. The droppings of the hens should be occasionally removed. They should not be allowed to accumulate. The floors should be covered with loam or sand.

10. As hens require a deal of water, drinking only a small quantity at a time, it should be supplied abundantly and kept clean and fresh.

11. As they require, and must have, carbonate and phosphate of lime for their shells, it must be given them in unstinted quantities, and in the most convenient manner for them to pick and swallow into their crops.

12. These requirements will be found in old plastering, broken oyster shells, and best of all, in fresh bones, with some of the gristle and meat attached. It should be cut up on a log with a hatchet every day; the strife made by the fowls to get at it when offered them will plainly prove to you that they like and need it. The instincts of the hen in summer, with a proper range, will teach it what and where to collect the variety of food required. In winter when housed, man must supply it to them.

13. As hens have no teeth, and drop their food into their craws unmasticated, in order to digest it they must have access to stones and gravel, which being swallowed takes the place of teeth in their stomach, hence they must have a liberal supply of gravel.

14. The application of sulphur sprinkled upon the fowls, while roosting or otherwise, with a pepper box, will destroy vermin. Coal oil applied to their roosts in small quantities will also kill parasites. Two or three drops of whale oil, dropped occasionally on the back of a hen or any other bird will kill the lice.

15. The nests must occasionally be renewed and kept clean. Straw is better than hay. Tobacco stems covered with straw is an excellent prevention of insect breeding, especially when they are setting.

16. When clucking and not needed for mothers, the quickest way to stop their chicken-raising desire is to put them in boxes or cages without anything to lay upon except the board.

17. A few fowls in separate pens are much more profitable and more easily kept healthy than in larger numbers.

18. They require and must have in winter green food, such as grass, turnips, beet or cabbage leaves.

19. The temperature of a coop should not be allowed to be lower than 45 degrees in winter and should be most of the time up to 60 degrees.

20. Corn and wheat middlings, corn unground, oats, bread and other slops from the house should all be fed, changing as often as twice a week.

21. Like cows, horses and other stock, harsh treatment injures them. They like a kind master, and know his voice as quick as heard.

22. Hens should be killed when three years old, as they lay less eggs every year after the third, and they naturally become diseased and are not so good eating when older.

23. The sooner in the spring you commence setting the hens for the purpose of raising chickens the better; late chickens generally fare badly.

24. Pullets rarely make good mothers; three and four year old hens are best.

25. The best layers are the white, black and red Leghorns, and light Brahmas.

Mr. Engle agreed with the views of the essayist in every particular. He thought people made a great mistake in keeping their fowls too long on hand. For good layers they should never be kept longer than three years.

Dr. Greene said he would suggest the plan of sprinkling the cabbage plants with black pepper in order to kill the insects. He has found it to work very well whenever used, and he hoped the plan would be given a thorough test among the farmers of the county.

Mr. Engle thought the question as to the destruction of insects was an important one, and he hoped it would be well thought over by the farmers. He spoke of the various plans he had adopted for the destruction of insects. One of the best was to apply Paris green. There are numerous remedies which are undoubtedly infallible, but the farmers must persevere in their efforts to eradicate the evils resulting from the ravages of the insects.

Hon. John H. Landis donated to the society the agricultural reports of the State of Illinois for the years 1877, '78 and '79.

On motion, a vote of thanks was tendered Mr. Landis for his donation.

Mr. H. M. Engle to whom had been referred the questions "Should potates be cut into small pieces for planting?" said the question was a mooted one, and much could be said upon both sides of the question. If potatoes are cut for planting, none but the best should be used. They should not be allowed to lie too long after cutting, so that they became dried up. There is an idea that in order to secure good crops of potatoes, the seed should be changed frequently. He thought when potatoes were wanted for planting the farmers should select the largest from the largest varieties. The smallest and most imperfect should never be used if we would have a good crop.

Mr. Resh did not think potatoes should be cut. A small potato would certainly produce as good results as a small piece of a large one.

Mr. Brosius was in favor of planting the larger sized potatoes. In his observation he found that the small potatoes had more eyes than the larger ones, and he thought that when the larger ones were planted the nutriment would naturally be of more advantage.

Mr. Linville said it was said the small end of the potato should be cut off and planted, and the remainder divided and planted. One season he went over his patch and pulled out the small stalks, and he never had a better crop in his life. He had cut into pieces of one eye each, but never found that to work to very good advantage.

The question was fully discussed by a number of other gentlemen, after which the question "Which is preferable in cultivating corn, hill planting or drilling?"

Mr. H. G. Resh, to whom the question had been referred, said that the question, he thought, was entirely one of convenience. Since the introduction of machine planting, however, one method was as convenient as the other. He did not think anything could be gained by planting it in hills, except during the cutting season. Cutters generally preferred

that which was planted upon the hills. The difference in the yield, he said would be but trifling, and he thought practically there was but little argument in favor of drill planting.

Mr. Witmer thought hill planting was preferable, because the farmer can put into the ground just as many grains as he desires.

Mr. Miller said he had tried both hill and drill planting, and he found after the corn was cut that planted by drill was largely in excess of that planted in the hills.

Mr. Engle said that it was generally conceded that the corn drilled into the ground yielded a larger crop than that planted by the other method.

Mr. Bollinger's observation led him to be in favor of row planting. He also believed in a thorough cultivation of the soil, and the application of plenty of manure.

The question was also discussed by other members of the society, and many views were brought forth upon the subject.

The following question was then taken up: "What percentage of land should be planted in tobacco?"

Mr. Landis said the question was an important one to the farmers of Lancaster county. It was of vast importance for the raisers of the crop to know what percentage could be planted and the county retain its standard as the best agricultural county in the country. Too great an acreage should not be laid out in tobacco, else the farmers will soon find their soil deteriorating in value, as it has done in Connecticut.

Mr. Hoover agreed with the preceding speaker. He thought no farmer should cultivate more than six per cent. of his land in tobacco. Some farmers, however, could cultivate ten acres with as little damage to the soil as he who only plants six acres out of every hundred. He did not think the farmers of this county would ever fall into the errors that the Connecticut farmers have done. Our farmers look far ahead, and try every means in their power to keep the soil good.

Mr. Brosius said he did not apprehend any danger in the future from the cultivation of tobacco. The farmers are very careful of their soil, and he saw numerous fields that were last year planted with tobacco, this year growing wheat.

Mr. Engle thought there was no doubt that the raising of tobacco was of great benefit to the county, but he could not see the advantages that accrued to those using the weed.

Mr. Miller did not think more than three per cent. should be planted in tobacco.

Mr. Reist said Lancaster has been a tobacco growing region for the past 25 years, and he thought the soil compared as favorably now as it did then.

A motion was made to the effect that it is the sense of the society that five per cent. of the average of the farm land be sufficient to be put out in tobacco.

The question was amended by making it three per cent. The amendment was lost, and the original motion carried.

The question of the amendment to the by-laws, noticed in our last month's report, was then taken up, and the amendment was, on motion, adopted.

Mr. W. L. Hershey presented to the society for distribution some rye, oats, barley, wheat and clover seed sent to him from Germany.

J. C. Linville presented to the society some fine specimens of Romanite apples.

On motion of Cooper, the 8th, 9th and 10th of September were selected as the days upon which to hold the proposed fair of the society.

The following questions were referred for discussion at the next meeting. "At what stage of the growth of corn should the stirring of the soil cease?" Referred to Jacob Bollinger.

"Does fermentation increase the nutritive properties of feed?" Referred to H. M. Engle.

"What are the relative values of timothy and clover hay as feed?" Referred to Peter Hershey.

"What is the best period of growth for cutting grass or hay?" Referred to Calvin Cooper.

The president appointed Mr. Peter S. Reist and Dr. S. S. Rathvon to fill the vacancies in the Board of Managers caused by the resignation of Messrs. Landis and Miller.

On motion adjourned.

POULTRY ASSOCIATION.

The Lancaster County Poultry Society met statedly in their room in the City Hall, at half-past ten o'clock on Monday morning, May 3.

The following members and visitors were present: J. B. Lichty, city; William Schoenberger, city; Frank Griest, city; Frank R. Dillenderfer, city; C. A. Gast, city; J. W. Bruckhart, Salunga; John A. Stober, Schoneck; J. B. Eshleman, West Hempfield; Rev. D. C. Tobias, Lititz; John Schum, city; H. H. Tshudy, Lititz; Chas. Lippold, city; J. B. Long, city; Ferdinand Schaeffer, city; J. M. Johnston, city.

The president, Mr. Wartel, being absent, Hon. John A. Stober was called upon to preside.

The minutes of the preceding meeting were read and approved.

Mr. A. E. Bare, of East Cocalico, was elected a member of the society.

At the last meeting of the association attention was called to an article in the Germantown *Telegraph* from the pen of William T. Smedley, of Chester county, in reference to the housing of fowls, and it was made the subject for discussion at this meeting—the discussion to be opened by Rev. D. C. Tobias.

The article was, on motion, read by the secretary, and is as follows.

At the risk of being considered rather inhuman, I feel inclined to dissent from the views of many of our progressives in regard to the housing of poultry. In common with a good many other agricultural enthusiasts, I imbibed some very advanced ideas at the setting out of my career as a farmer. Time has modified most of these views considerably. Among other things, I have recently come to the conclusion that mistaken kindness kills more poultry than it saves. I had always good shelter for my fowls when they choose to avail themselves of it, but some half dozen years ago I put up an approved house for them, with plenty of windows to admit the sunshine, and tightly fitting doors to exclude the cold, and after a time of driving and coaxing finally got them reconciled to their new quarters. Since then I have been wintering from eighty to one hundred and twenty-five hens. But, while under the old regime of roosting where they pleased, sometimes on trees or fences, sometimes under shelter, occasionally a comb got frozen, they were in the main healthy. Under the new order things did not work so well Though I had what I considered among the hardiest breeds, Black Spanish, many died. Some would linger for days and even weeks, others would drop from the perch at night without giving a hint. Desiring to change for a larger fowl, a couple of years ago I got the Rose-combed Dominiques. Then the mortality became greater. This fine plump breed is not hardy in my hands. A larger percentage of them died than of the Spanish, until the past autumn when the mortality became an epidemic, and they died at the rate of four and five a day. This went on till a friend suggested that I was killing them with kindness: that my pleasant quarters were not healthy for the number I had. Willing to try the hint I closed the house, and though it gave both the tenants and myself great annoyance for a time, I finally forced them to take to other quarters, principally the apple trees, and soon the balance (about seventy,) ceased showing any signs of disease.

My location is high and exposed, but up to the present I do not see that the exposure has harmed them, as they are laying better than for many winters, and much better than those of my neighbors. Now, while feeling very kindly to the dumb creation, I cannot help thinking that we bring on them more diseases by our care than they used to know when they were being what we are accustomed to call "neglected." While on the chicken question, I will mention that several of my neighbors have tried a remedy for chicken cholera, that they feel sure is a sovereign cure for the disease. As it is not my property I do not feel at liberty to make it public.

Mr. Tobias read an essay upon the subject, taking the opposite view of the question. He thought that if Mr. Smedly had better houses built and did not overcrowd them with his fowls he would not have had such bad luck with them. Eighty or one hundred fowls are entirely too many to allow in one flock. Not more than fifty should be allowed together, and even a smaller number would be found advantageous. Mr. Tobias thought the houses should be bright, roomy and airy and they should be kept clean, and disinfectants used frequently. He thought Mr. Smedley's ill success when he housed his fowls was due principally to over-feeding. More are killed by feeding than are carried off by disease.

Mr. Tshudy thought Mr. Smedley, in his article, should have told his readers how many fowls he had and the condition of his chicken house and its ventilation. Had this been done, readers could have been better able to judge of its merits. He agreed with Mr. Tobias in regard to over-feeding fowls.

Mr. Bruckhart's experience was that fancy fowls were liable to many more diseases than the common chickens. He thought the reason for this was that so much more care was taken of the fancy than of the common fowls. He thought the plan of housing them continually was a mistaken idea.

Mr. Lippold agreed with Mr. Bruckhart. When he kept common fowls he never knew what disease was; but when he took to raising games his fowls took cold nearly every fall and winter, and many of them died.

Mr. Tobias reiterated his statement that fowls were not killed by kindness but by over-feeding. They should be treated properly and housed well and the consequence will be found to be beneficial. He thought too much inbreeding would in the end tend to reduce the quality of their blood.

Mr. Bruckhart did not think the question was shelter or not, fowls which were housed died at once. It should be evident to every one that housing them would tend to make them more tender. A fowl which has to stand all sorts of weather would certainly become hardy and more capable of resisting disease.

Mr. Schum agreed with Mr. Tobias. He did not believe in housing fowls, only at night. During the day they should be allowed to run around the yard.

Mr. Long also found the same trouble with his fowls when he had a defective house. It should be warm, dry and have plenty of ventilation. This should be only used for roosting in.

Mr. Stober related some experience he had in regard to over-feeding. His fowls have feed continually at their command, and he found them to thrive very much. He did not think it harmed fowls to over-feed them.

Mr. Lichty thought the idea of doing injury to fowls by having the flocks too large was long ago exploded. In support of his statement he read an extract from Wright's book on poultry, which described numerous large flocks, in none of which disease had made its appearance.

Mr. Long desired to know whether the prevalence of chicken cholera among fowls made the young chicks liable to it.

Mr. Stober had considerable experience with the chicken cholera, but he never knew the chicks to take it at the time older fowls had it, but when they grew to be larger, he found them to die by the score.

Mr. Tshudy had found that cholera was no respecter of "age, color or former condition." He found his fowls to die off from the age of four days until they were full grown.

The following question was proposed for discussion at the next meeting: "What is the proper food for old and young chickens during hot weather?" Referred to Mr. Tshudy.

There being no further business, the society, on motion, adjourned.

THE BEEKEEPERS' ASSOCIATION.

The Beekeepers Society of Lancaster met Monday afternoon, May 10, at the Black Horse hotel.

In the absence of the president Mr. I. G. Martin was called to the chair.

The following members were present: I. G. Martin, Earl; Elias Hershey, Paradise; John H. Mellinger, Strasburg; John Eitemiller, Strasburg.

Mr. Martin said he went into winter quarters with thirty-two colonies, and they all came through well; he lost none and was not obliged to feed any this spring. The bees were strong and active, and nearly ready to swarm. The prospects for a good crop of honey are at present very promising. He wintered his bees in their summer stands, and has done so for several years, his experience teaching him that this is the best plan.

Mr. Hershey said he wintered thirty-one colonies, all of which got through safely except two, which died of starvation. The remaining colonies are all in good condition and the prospects are promising for a good crop of honey. He had no swarms at present, but had heard of some.

Mr. Eitemiller wintered twenty-six colonies and lost seven. The rest are all in very good condition, and almost ready to swarm. Prospects for a heavy harvest are good.

Mr. Mellinger went into winter quarters with sixteen colonies on their summer stands. He used no packing, and only lost three colonies—whose queens had died in the fall.

The question being raised as to the best plan of introducing queens, Mr. Mellinger said his method was to take out the old queen and place the new one at once in the hive.

Mr. Hershey had also followed the same plan with much success.

Mr. Mellinger thought that a better plan was to remove the old queen three or four days before introducing the new one. He also takes away the old queen cells.

Mr. Martin said he placed the queen to be introduced in a wire cage. He then removes the old queen and at once introduces the new one in its cage. After allowing it to remain in the cage twenty-four hours he opens it and allows the queen to come outside the hive on a comb. If the bees are kind to her he does nothing more, but if they do not want to accept her he places her in the cage again for the same length of time. This he does until she is accepted. Since he has tried this plan he has not lost a queen.

Mr. Eitemiller said he removes the old queen first. The new queen he places in a cage and plugs up the apertures with honey and comb, and hangs it in the hive, where he leaves it three days. At the end of that time if the queen has eaten her way out, all is right, but if not, he then lets her out quietly, so as not to disturb the hive. He tried this plan on fifteen colonies and did not lose a single queen. He always introduced them in the latter part of August.

In reference to the best plan of getting bees to work in section boxes, Mr. Hershey said his experience was to give them a comb foundation,

Mr. Martin said that when he had colonies which refused to work up the upper stories of his boxes, he took a section already filled with comb, and placed in it the bees who refused to work, and he always found they would then work toward the upper story.

The question was raised as to whether it is profitable to invest in what are known as "dollar queens"—queens that have only commenced to lay—and the

general impression among the members was in favor of so investing, provided the queens were purchased from reliable parties. A reliable dealer will only have pure queens, as he will not breed when he has hybrid drones about his place.

The society adjourned to meet on the second Monday in August.

FULTON FARMERS' CLUB.

The Club met at the residence of Solomon L. Gregg on April 10.

William Lee, a visitor, exhibited the bean of the French locust. John Grossman, also a visitor, exhibited two apples for a name. They were as fresh looking after keeping through the winter as if just taken from the tree. E. H. Haines pronounced them to be the Tewksbury Winter Blush, and says they will keep a year. Mr. G. distributed some scions of this and another variety of apples, which he calls the Spoon Hower. The fruit of the latter variety, he says, is varied in color, and begins to ripen very early, and continues to ripen through the summer. The tree is a full bearer and a vigorous grower.

Asking and Answering Questions.

E. H. Haines: Do the members think it better to make worm, or post and rail fences, taking into consideration the cost of land, timber, etc.?

Montillion Brown always likes to have a good post and rail fence between his cattle and his crops. The cattle are apt to rub worm fence down. A neighbor of his some years ago had some bad cattle in the field adjoining his. He did not feel easy with a worm fence on the line; so he replaced it with a good post and rail, and found that he could sleep much better at nights.

Joseph R. Blackburn would prefer post fence if locust posts were used; chestnut posts cost too much, considering the short time which they last; would prefer worm fences to post and rail if chestnut posts were used, as he could use rails in them that were far too rough for post and rail.

S. L. Gregg thought worm fence the cheapest; besides they can easily be removed to clean up the row. Where land is worth over one hundred dollars an acre, post fence would be cheapest, because they occupied less ground.

John Grossman is almost a "no-fence man." He likes post and rail fence around the farm, but don't think it profitable to have inside fences. Cattle could be kept in the yard, and a boy hired to cut and haul feed to them for nearly the same expense that it would take to keep the fences in repair. In this way the ground they occupied could be farmed.

C. S. Gatchell: Will water, thrown into a cistern by an hydraulic ram, get cool ten feet under ground?

No one present had tried the experiment.

William Lee said that he had found that it took from ten days to two weeks for rain water to get cool in a cistern.

Montillion Brown: Has any one known an ox or steer, when foundered, to get stiff in the limbs like a horse?

Joseph Griest and others have known it to occur.

E. Stanford: Is wet or dry feed the best for cows?

The majority preferred wet feed, although some of them fed dry, because it was less trouble.

Viewing the Premises.

After dinner the club took a short stroll over the farm, in order to inspect the manner in which it was conducted, the quality and condition of the live stock, etc. After returning to the house a few criticisms were given, mostly of a favorable character. One of the members had observed a grove of young locust where the trees were standing entirely too thick; many of them should be dug up.

Literary Exercises.

"The Old Way and the New" was read by Alice Gregg.

Mabel Griest read from the *Household*, "How we Dipped Candles."

Mary A. King read "A Free Seat," an instructive account of the visit of a stranger to the church of Christ. After walking up and down the full length of the aisle, without any one inviting him to a seat, he went out and brought in a stone, on which he sat down. Pew-doors were immediately thrown open and seats freely offered him. The stone is still kept by the congregation to remind them of the day when Christ came late.

"The Old Farm Gate" was recited by Carrie Blackburn.

E. H. Haines read a report of experiments in fertilizers.

Day Wood read from a State agricultural report an article by Professor Leslie on "South Carolina Rock."

C. S. Gatchell read an account of "The Bloomingdale Creamery."

The question: "Is the Experimental Farm of sufficient value to the State to pay for the money invested?" was next taken up and discussed. On this question the club was about equally divided in opinion, several thinking that the experiments were valuable only in the locality of the farm, while others took the ground that we are all benefited by them. If we were not, it was probably our own fault. The farm was a thing that we should all be proud of.

After appointing a committee to furnish literary matter for next meeting, the club adjourned to meet at Wm. P. Haines's, Fulton township, 8th of next month.

LINNÆAN SOCIETY.

The April meeting of the Linnæan Society was held in the ante-room of its Museum on Saturday afternoon, the 24th, the president, Rev. J. S. Stahr, occupying the chair. Ten members and four visitors were present. M. L. Davis, M. D., of Millersville, was appointed secretary, pro tem. After organization and collection of dues, the following donations were made to the museum and library and the historical section, which were duly registered and discussed:

A fine specimen of the Southern "Pouched Gopher," from Georgia, through Mr. H. Vondersmith. This is the *Geomys pinetis* of naturalists, but in the South it is commonly called a "salamander," which shows the unreliability of exclusively common names. Forty specimens of minerals and metals, eight of fossils and twelve of fresh water shells, through A. P. Hostetter, Esq., being a fragment of the J. Yates Conyngham collection. Five specimens of *caviar*, being the dried roes of the sturgeon of commerce, and largely consumed by the Russians, and also highly relished by the Japanese; part of the contents of the valise containing books left at the mayor's office and presented by his Honor J. T. MacGonigle. A box containing eleven Japanese camels' hair pencils, with bamboo handles and sheaths, from the same.

Two immature dried quinces of 1879, infested by a species of uredino fungus.

Six impressions in wax, of local seals of the Adams Express Company in Lancaster county, and three of the Reading Express.

Twenty volumes of French philosophical and elementary books; one volume English grammar, and seventeen volumes of Japanese historical and literary works, by Hon. John T. Macgonigle. Part 3 for November and December, 1879, of the proceedings of the Academy of Natural Sciences of Philadelphia. Report of the Directors of the Central Park Menagarie for 1879. Nos. 13, 14, 15 and 16, 1880, of the *Official Gazette* of the United States Patent Office. Index to decisions of the same for 1879. Ten catalogues and circulars of scientific and historical books. The Lancaster FARMER for April, 1880. 1 volume, "State of Labor in Europe," by Hon. A. Herr Smith.

Twelve envelopes containing 110 historical and biographical selections, from S. S. Rathvon; a copy of the centennial number of the *Baltimore American* 1873; a copy each of the *Hawaiian Gazette* and the *Commercial Herald*, Honolulu, Sandwich Islands, 1870, from S. S. Rathvon.

The following were papers read: No. 539, by S. S. Rathvon on the "Pouched Gopher," No 540, by the same, giving a list of the titles and the authors of the books donated by Mayor MacGonigle; No 541, a very elaborate and interesting historical paper was read by Dr. Dubbs, on "Ephrata Publications," which was unanimously requested to be published; No. 542, "Botanical Notes," by President Stahr, in which he commented favorably upon the fresh impulse that the natural sciences have received from the young men and students of the educational institutions of Lancaster, especially in the departments of botany and microscopy, and astronomy, in which the Linnæan is in hearty sympathy. He also laid before the society two plants somewhat rare for this region, namely a specimen of *Trillium erectum* var *album* from near Harnish's Mill, and a specimen of the *Pyxidanthera barbulata*, a creeping evergreen, common in the Jersey barrens but rare here.

The committee appointed at the February meeting to inquire and consider the feasibility of publishing a periodical bulletin of the society, reported progress, and was continued.

The following was offered by S. S. Rathvon and unanimously adopted:

Resolved, That a vote of thanks be passed to Mayor MacGonigle and others, for the liberal donations which, through their instrumentality, have been made to the society on this occasion.

The society then proceeded to fill the vacancy in the secretaryship, occasioned by the death of the late Mr. Stauffer, which resulted in the unanimous election of Dr. M. L. Davis, of Millersville, for the balance of the term.

A communication was received from Mr. J. D. Widgate, of Carbondale, Pa., proposing to send the society a suit of the fossils of the coal region. The proposition was thankfully accepted, and the secretary was ordered to reply accordingly.

The donations were large, valuable and interesting; and under the rule of "Scientific Gossip" a spirited interest seemed to be manifested in behalf of the society, and on the whole the meeting was a very interesting one. After an hour or two pleasantly spent in a mutual interchange of views on various scientific topics the society adjourned to the last Saturday in May. The Linnæan has maintained its organization intact longer than any other scientific institution that has ever existed in Lancaster.

ENTOMOLOGICAL.

Tobacco Plants Depredations by Bugs.

Lancaster county is not the only place in which the young tobacco plants are being destroyed by bugs. The Clarksville, Tenn., *Leaf*, of April 23, has the following interviews with planters, showing the extent of the damage by bugs:

M. C. Johnson was found at Hampton station and says: "I sowed fourteen beds; they have eaten the plants clean from thirteen. I have one small bed they have not finished yet and I don't care a d——. Wish they would eat every plant in the United States. They are eating the plants clean in Pondy woods, something that was never known before. My grange (Guthrie grange) report their plants nearly all destroyed."

W. W. McMurry says: "My plants are seriously damaged, but if I can check them now I think I will have enough to set my crop."

Mr. Henry Reason says: "My beds are as clean of plants as this floor. I examined them this morning and a plant could not be found on them with a forty-horse-power magnifying glass."

Reporter—"What are you going to do about it?"

Reason—"I am going a fishing."

E. B. Ross said: "The bugs are eating my plants up. I do not regard my prospects for plants as worth a fig."

O. D. Battle: "The bugs have about destroyed my first sowing. Have burnt, resowed and canvassed."

F. Ewing: "They have destroyed two beds, and the prospect now is the bugs will finish the remainder in a week."

Gulfin and Son, cultivating the Busrap farm. These gentlemen were found on their knees at one of their plant beds, and said: "This bed is all we have left; our other two beds are as clean as your hand, but there are right smart left on this one, if we could only stop the cussed things. What's good for 'em?" Reporter—"Well, from your report, I would think that tobacco plants agreed with them finely." G. and son—"Oh! I mean what will kill the d—— things?" Reporter—"That is a conundrum that has been going the rounds of tobacco growers for the past two hundred years; when it is solved we will answer your question."

The farmers interviewed plant about 200 acres of tobacco.

[Whether the foregoing is a facetious exaggeration or a fact, we would like to see a specimen of the "bugs" that are capable of eating off a bed of tobacco plants "as clean as the floor." *Bugs* don't usually eat off anything. They live altogether on liquid food, from the sap of a plant to the blood of an animal. To devise a remedy, it is of some importance to know exactly whether we are dealing with a *bug* or a *beetle*. A remedy that would kill a beetle, might have no effect upon a bug—simply because the former in eating the plant would also be likely to eat the poison; whereas, the latter, that introduces its probosies into the plant to suck out the inner juices, might do so with impunity. If any of our tobacco growers are troubled with insects of the character of those described above, they will do us a favor by sending us specimens. We would like to have them placed on record, for the benefit of posterity.—ED. FARMER.]

About Cut Worms.

A correspondent of the *Country Gentleman* asks the following questions relative to cut worms: I wish to put corn, this spring, into a piece of old sod that lies next to one planted in corn last year. It was terribly infested with cut worms, and about the time they were disappearing, I noticed, in this pasture land I propose to plow, a great many small grey millers or moths fluttering on the grass. Without knowing anything positive about them, I inferred they developed from the cut worms in my corn hills, and were laying in this sod the foundation for another crop of worms. Am I right? If so, what can I do to protect the corn from their ravages? Would it be of any benefit to sow on the inverted sod, just before harrowing it, from 200 to 300 pounds of salt? What would be the effect of sprinkling on the top of each hill a small handful of salt before the corn came up, or around the corn after it came up?

ANSWER: The moth or winged form of the common corn cut worm is about three-fourths of an inch long, and an inch and a quarter with its spread wings, dusky grey in color, and is distinguished by two black spots (one nearly square near the centre of its fore wings, with a nearly white spot between them. You may judge, from this description, whether those you saw are the same. There is doubtless a strong probability that the unplowed portion of the field will be infested with them, as the plowed portion was last year. The last year's grubs changed to the winged insects in July, and laid their eggs at the roots of the grass. They hatched and fed on a portion of the grass till the approaching cold of winter, when they crawled into the earth and remained in a partly frozen state till spring. By the time the corn was up, they were

large and active enough to commence work in earnest. It has been found useful to invert the sod just before winter, turning up the stupefied grubs to sudden freezing, and thus destroying them to some extent. This course cannot be now adopted. We never found any repellent of any use. The only effectual remedy which we have ever used is to go over the field and kill the grubs by hand wherever they can be found, their presence being indicated by the plants which have been cut during the preceding night. As an instance, we may state that last year we had six acres of corn on inverted sod that was greatly infested with cut worms, and soon after the plants were up we found that either we or they must have the crop. We decided on the former. Two active men were sent into the field, and killed all that were found. One day they destroyed over 400, and on and off, during the next ten days, they secured 2,000. The aggregate time consumed was about four days. It was well worth the labor, at a cost of five or six dollars, to save the six-acre crop, or 300 bushels of corn. The result was entire success.

To Prevent Powder Post.

The honey-combed, powder-covered, worm-eaten, and therefore worthless state, which hickory timber will many times assume, if not properly cared for, is caused by the larvæ of an insect that deposits its eggs in the soft outer wood of the dead tree, mostly during the months of May and June. If the trees are cut at a season when the soft wood becomes dry and hard before the time for the inselt to make its appearance, there is no danger from this pest. Hickory cut in winter will generally be free from attacks, but to make sure, it is best to remove the bark, and even split the timber that it may become thoroughly seasoned. Keep it in a dry place.

Insects.

Destroy the eggs of the Tent Caterpillar, which are to be found in small closely fitting rings, or bands, near the ends of the smaller twigs, and may be cut away. Many insects harbor beneath the loose bark of trees, and by scraping this off and washing the trunk and limbs with a solution of soft soap much good may be done. To prevent the ascent of the wingless females of the Canker Worm, use heavy brown paper bound closely around the tree's trunk, and then smear with cheap printer's ink or tar. The bands will have to be re-coated at frequent intervals through the season.

AGRICULTURE.

System on the Farm.

System on the farm is essential to permanent success. Whatever branch of farming is selected should be stuck to, if only moderately successful. A man is constantly learning in a business to which he gives habitual attention, and this knowledge is part of his capital, just as much as the money invested in stock, tools, or buildings. The man who makes wheat a leading crop, by studying to lessen the cost of production, by experience in the best methods of preparing the soil, the use of manure, and the cultivation of the crop, can raise wheat cheaper than his neighbors, and though selling at the same price, will realize a profit when they barely escape a loss. On the other hand the man who is ever ready to abandon his usual practice, in order to follow something that pays exceptionally well at the moment—such as sheep husbandry or hop culture; when mutton, wool, or hops are fetching high prices—is pretty sure to lose money in the long run, either through ignorance of the best methods in his unaccustomed occupation or an unforseen fall in the products. Such ventures are of a speculative nature and the steady going farmer cannot safely afford to be a speculator.—*Rural New Yorker.*

Watering in a Dry Time.

In the summer droughts which now and then occur it is common to see persons everywhere at work watering the garden to keep things alive till the regular rains come. It is, however, the experience of all, that the more the garden is watered the more it wants, and thus on the whole it does little good. Yet water can be so given as to be free from this objection. It is the hardening of the surface which causes the evil, and a hard, compact surface always dries out faster than a loose one. The proper way is to take the earth away for a few inches around the plant to be watered, so as to make a sort of basin, and into this pour the water, letting it gradually soak away. After it has all disappeared and the surface gets a little dry, then draw the earth back again which has been misplaced to make the basin. This will make a loose surface over the watered part, which will preserve it from dying out rapidly. Tomatoes, egg-plants, cabbages and other things of this character, watered in this way, will need no renewal of water for several weeks. It is a slow way of getting such work done, but it is the only sure way of doing it.

Sowing Orchard Grass.

Orchard grass is very deservedly coming more into cultivation every year, both North and South, and it will perhaps benefit some to be told how to sow it. It should always be mixed with clover seed. To mix the seeds properly, put down upon a floor half bushels of orchard grass seed, and scatter over that one quart of clover seed; repeat until you get a stout pile say four or five bushels. Then mix thoroughly; spread out upon the floor, and sprinkle water on the pile, stirring all the time until quite wet; then mix in plaster or dry ashes, or even bran, until sufficiently dry to separate when thrown from the hand. Throw it in bulk till next morning, when it is ready for sowing. Taken through this process it can be sown with as much regularity as wheat, regardless of ordinary winds. If it remains in bulk more than one night in warm weather, it will heat, and must be opened. Except for meadows or standing pastures, orchard grass is too expensive. For the ordinary shifts, it is better to use clover seed alone, as orchard grass does not do its best under two or three years, when, if the land is good, it will have made a sod that will resist the action of the feet of the stock in wet weather.

Mixed Farming.

Until our country is settled up, and the virgin fertility of the new soil is beginning to be exhausted, we can not hope for that safe and solid foundation for our agriculture which comes from Mixed Farming. When every farmer comes to that point when he knows that his land is a medium through which crude fertilizing elements pass in becoming food—vegetables, fruits, grains, flesh—he will feel the importance of a variety of products-a rotation of crops-and the value of animals in the economy of the farm. As our country grows older, farmers will from necessity be more thorough students of their profession.—*American Agriculturist.*

How to Dissolve Bones.

A Russian chemist gives the following process for the preparation of bones for manure, which, it is said, received the approbation of Leibig: Mix 400 parts of ground bones with 400 parts of wood ashes, containing ten per cent. of carbonate of potash, and add sixty parts of quicklime. This mixture if placed in a tank or barrel, with water sufficient to make the whole moist, in a short time the bony matter is completely disaggregated by the caustic, while the pasty mass formed is then taken from the tank, dried, mixed with an equal amount of mold, and is ready to be distributed.

HORTICULTURE.

Flowers and Snrubbery.

We took occasion a year or two ago to present a list of vines, flowers and shrubbery, as a guide to those of our readers who may not be familiar with the names of the most desirable varieties, and who may wish to decorate their yards, garden or lawns the present season. And we take occasion again to urge upon all who have the least possible taste for the beautiful in nature, and have not less than a square perch of ground, not to allow the present season to pass without planting a new vine, flower or shrub. The ladies have not always the facilities to obtain the plants; but if their fathers, husbands or brothers are considerate enough to obtain a few choice specimens for them, there need be no fear that they will not receive due attention. The love of flowers is part of a woman's nature, and to deprive her of them is to deny her one of her principal enjoyments.

One of the things which we have noticed about many places, is the neglect to multiply the different plants by cuttings. Every vine, shrub and flower can be propagated from either the wood or the root. Some of the plants are propagated more easily and almost entirely after the second growth has commenced, say in August. Propagation from the root usually takes place in the spring; if started under glass, early in February is probably the best time.

If we have a single specimen of a fine rose, how much will it add to the beauty of a yard or garden to increase it to half a dozen? So with any other desirable flowers. The deutzias, spireas, wiegelias, &c., and all the climbing vines are readily propagated from cuttings. So are box-edgings, arborvitæ, &c. All it needs is a little attention at the proper time. Until the cuttings take root they should be kept moist, set out in a rather shady place, or at least protected from the sun during the hottest part of the day.

Grsfting Wax.

Every spring we notice numerous receipts published for making grafting wax, each one being an improvement on all others. Some of these require considerable time to prepare in getting together all and the exact quantity of the many ingredients. We profess to have had some personal experience in grafting and using various preparations of wax, and have not yet come across anything better than the simple wax, the receipt of which we have so often published in the grafting season, composed of bees' wax, rosin and tallow, in such proportions that the wax will not run in the hot sun, nor crack in the cold, windy weather. With it we have had as much success in grafting as anyone using any other wax.

And as we have already several inquiries for it, we may again simply say these are the proportions used: four parts of rosin, one part of bees' wax and one part of beef tallow. Melt them together in a skillet (which is the best,) or a tincup, and stir well. It should remain in the vessel and be used as needed. Twenty or thirty scions can be waxed with one warming up. When much grafting is to be done, a little fire for heating the wax should be made on the spot, between two bricks or stones. At this time we do not remember ever losing a graft by reason of the wax, if well applied. In a few weeks after the grafts have been set we usually go over them and add a little wax wherever it may seem to need it, as the high winds may occasionally crack the wax. This is but trifling labor and is no more than an inspection of the work.—*Germantown Telegraph.*

Plants and Plant Food.

Some plants are surface feeders, *i. e.*, their roots are short, usually small, and numerous, and only penetrate the upper portion of the soil, as in the case of the onion, turnip, and the cereals, though the latter are perhaps medium, rather than shallow feeders. It is easy to see that such crops must derive their nourishment from that portion of the soil which their roots penetrate, and are therefore surface exhausting. On the other hand, clover, lucerne, and the long roots, as carrots, parsnips, etc., are deep feeders, and exhaustive to the lower portions of the soil. These facts have a direct bearing on the succession of crops, and the application of fertilizers. If a fertilizer is applied to the land, it tends downward and its descent depends upon the solubility of the substance and the porosity of the soil. To have, therefore, the least loss and the quickest returns, a surface feeding crop is the one to which to apply the fertilizers, and this crop should be followed by a deeper feeder the next season, which will bring the sinking food to the surface again. It is in this capacity that the clover crop is so valuable in a rotation. It is a great point to keep the plant food within the reach of the roots of the plant, and it can be best done by applying it to a surface feeding crop, and follow it up (down rather) by a deep feeder, the roots of which penetrate far down.

Asparagus and Celery.

A medical correspondent of an English journal says that the advantages of asparagus are not sufficiently appreciated. Those who suffer from rheumatism are cured in a few days by feeding on this delicious esculent; and more chronic cases are much relieved, especially if the patient avoids all acids, whether in food or beverage. The Jerusalem artichoke has a similar effect in relieving rheumatism. It may be well to remark that most plants which grow naturally near the sea coast contain more or less iodine, and in all rheumatic complaints iodine has long been a favorite remedy. One who has been in the drug business told the writer some years ago that many of the popular patent nostrums which some disinterested people—"for the good of their fellow creatures"—sold at two dollars a bottle, consisted of a few cents' worth of iodine in a solution. Iodine is dangerous, however, in overdoses, affecting especially the eye.—*Scientific American.*

HOUSEHOLD RECIPES.

PICCALILLI.—To 1 gallon strong vinegar add 4 ounces curry powder, 4 ounces good flour of mustard, 3 ounces bruised ginger, 2 ounces turmeric, 8 ounces skimmed shallots, 2 ounces garlic, the last two slightly baked, ¼ pound salt, and 2 drachms cayenne pepper, put these in a stone jar with a quart of vinegar, and cover them with a bladder, wetted with the pickle, and over this a piece of leather; set the jar near the fire for 3 days, shaking it 3 times a day, when it is ready for use. Put gherkins, sliced cucumbers, sliced onions, button onions, cauliflower, celery, French beans, nasturtiums, capsicums, large cucumbers, and small melons in jar. All but the capsicums must be parboiled in salt and water, drained and dried on a cloth before a fire. The large cucumbers, or small melons, are split so that a narrow spoon may be introduced, and the seeds scooped out; they are then parboiled in brine strong enough to float an egg, and dried on a cloth before the fire; pour over all these vegetables the above pickle.

WORCESTERSHIRE SAUCE.—Mix 1½ gallons white vinegar, 1 gallon walnut catsup, 1 gallon mushroom catsup, ½ gallon canton soy, ½ gallon Madeira wine, 2½ pounds moist sugar, 19 ounces salt, 3 ounces capsicum, 1½ ounces chutney, 1¼ ounces each of pimento and coriander, ¾ ounces, each of cloves, mace, and cinnamon, and 6½ drachms assa-

fœtida, dissolved in 1 pint of brandy, 20 above proof. Boil 2 pounds hog's liver for 12 hours in 1 gallon of water, adding water as required to keep up the quantity. Mix the boiled liver thoroughly with the water, strain through a coarse sieve, and add the mixture to the sauce.

To Remove Grease from Cloth or Silk.—Separate the yolk of an egg from the white as perfectly as possible. Then stretch the fabric on a board, and with a soft clothes brush dip into the yolk, and rub the spot with it until the grease seems loosened. The yolk will not injure the most delicate colors, but the rubbing may, if too severe. Then rinse with warm rain water, rubbing the edges with a damp cloth, and clapping the whole between dry towels. If the stain is not quite gone, repeat the process. It will not do so well for fabrics mixed with cotton or linen.

To Remove Grease from Silk or Velvet.—Rub the spots on the silk lightly and rapidly with a clean soft cotton rag dipped in chloroform, and the grease will immediately disappear without injuring the color of the silk. Repeat the operation if necessary. Be careful to rub the article rapidly and lightly, then finish with a clean dry cloth. If these precautions are not taken, a slight stain is apt to result. Very highly rectified benzine, such as is prepared by the first-class druggists, will also immediately remove grease from the most delicate colored silks.

Patent Yeast.—Simmer 6 ounces hops in 3 gallons water for 3 hours, strain and in 10 minutes stir in a ½ peck ground malt. Then reboil the hops in water and add the liquor to the mash already made, stir thoroughly, cover and leave it for 4 hours. Then drain off the wort and when cooled to 90° Fahr., set it to work with 1 pint of yeast. Let it stand from 20 to 24 hours, take off the scum, strain it through a coarse hair sieve, and it is ready for use. A pint is enough for a bushel of bread.

Tomato Catsup.—Cut ½ bushel of tomatoes in pieces, boil in their own liquor till soft; strain and press through a hair sieve to separate the skin and seeds, boil to a thick pulp, stirring all the time. Add 6 ounces salt, 6 drachms allspice, 3 ounces black pepper, 3 drachms mace, 6 drachms cloves, 2 drachms cayenne pepper, and 1 gallon vinegar. The spices must all be ground. Let the whole boil up twice; when cool, bottle.

Mixed Pickles.—Take 1 pound ginger root, ½ pound garlic, (both previously salted and dried) 2 gallons vinegar, ½ ounce tumeric, ¼ pound long peppers. Digest together for 2 or 3 days near the fire in a stone jar, or gently simmer them in a pipkin, or enameled saucepan. Put in almost any vegetables except red cabbage, and walnuts, all previously salted and dried.

Simple Method of Removing Grease Spots from Silk.—Take a visiting or other card; separate it, and rub the spot with the soft internal part, and it will disappear without taking the gloss off the silk. Be careful and rub the silk on the wrong side, as the card sometimes will soil delicate colored silks, but if the above precaution is taken, the spot cannot be seen on the right side of the silk.

Live Stock.

Pure Milk.

The English popular science journal, *Nature*, published an article recently on the subject of the uses of milk and the means to insure its purity, which seems to be full of pregnant hints and suggestions. The writer does not go into the question of the watering and adulterating of milk, of which enough, perhaps, has been said. The writer in *Nature*, however, treats of milk after it has reached consumers' hands. He shows that, outside of what children consume, nine-tenths of the demand for milk is for use in tea and coffee. He protests against this use as a barbarous custom, originally the result of ignorance, just as the first Dutch importers of tea stewed it and served it dressed with butter. It is estimated that the annual product of milk in the United States is about 240,000,000 gallons, of which 15 per cent. goes to make butter and cheese, the rest being consumed in its fluid form. *Nature* says that when tea is mixed with milk the tannin in the former renders the albumen in the milk insoluble and leathery, and therefore indigestible. Be this as it may, the united opinion of scientific and medical men favors the taking of milk in its natural form into the stomach, and it is declared that it cannot be kept pure and easily digestible if exposed to atmospheric changes or fluctuating temperatures. As a rule, milk is not kept properly in our houses. It is left uncovered or partly covered in the pantry or the refrigerator, alongside of cold joints, bread, cheese, pickles, what not, and this in spite of the fact that it is more easily affected by the odors of other substances and more quickly tainted by them than almost any other product of the animal economy. In the spring the cow's fresh milk tastes and smells of the garlic, the clover, the weeds she has been eating. In the pantry a canister of pepper near by or a jar of ginger will almost immediately flavor it. Of course the effluvia of other articles will taint it in equal measure; and why should parents be so anxious to get pure, unadulterated and unwatered milk for their children if they are so careless about preventing the corruption of its purity after they have received it? It is the opinion of the writer in *Nature* that quite as much milk is poisoned in the pantries as is diluted by the milkmen and producers.

Colic in Horses.

A correspondent of the Massachusetts *Ploughman* gives the following cure for colic in horses, which is convenient at all times and easily applied. He has never known it to fail: Spread a teacupful of salt upon the back of the animal over the kidneys and loins, and keep it saturated from 20 to 30 minutes, or longer if necessary. If the attack is severe, drench with salt water. I have a valuable bull, weighing nineteen or twenty hundred pounds, which had a severe attack of colic a year ago last summer. I applied salt to his back as above, and it being difficult to drench, we put a wooden bit into his mouth, keeping it open about two inches, and spread salt upon his tongue, which, together with the salt upon his back, relieved him at once, and within a very short time equilibrium appeared fully restored. I have for several years past successfully applied this treatment to other animals in my herd.

A Jersey Cow's Record.

It is not rare to find a heavy milker among Jersey cows, yet the average is by no means extraordinary. Possibly a true record of a whole herd of Jerseys as to weight of milk would fall below that of a herd of natives even, and greatly below that of an Ayrshire herd. A notable record of an English Jersey cow, however, is worth recording. The cow is "Luna," owned by Mr. Simpson. In 1876 she gave 8,985 lbs.; in 1877, 8,202 lbs.; in 1878, 8,368 lbs.; an average of 8,518 lbs. per year, or equal to a daily average of more than 23 lbs. or 11 quarts. One of the most conspicuous characteristics of a Jersey cow, is her persistence in milking, and although she may not give so great a yield, yet by hanging on during 300, or 330 days, she makes up by perseverance, what others do by more copious, but less continuous milking. If there were only more Jerseys like this one! —*American Agriculturist*.

Cows.

Garget and abortion trouble the dairymen. We believe in prevention. The former may surely be prevented by due care. As soon as the udder contains milk, it should be relieved by drawing off a part of it, if there is any tendency to hardness. These diseases are often a consequence of weakness. A fat animal may be weak for want of food. When a cow's time approaches and the feed is suddenly reduced, disturbance of the system is caused, circulation becomes irregular, and congestion occurs in the most susceptible organs. The udder is the principal one of these at this period, and an attack of garget is sure to occur. This may not always be so, but long experience and observation convinces us that it generally is. The remedy is obvious.

Put Bells on Your Sheep.

On one sheep in every ten of the flock put a bell of the usual size for sheep. The instinct of the dog prompts him to do all his acts in a sly stealthy manner; his attacks upon sheep are most frequently made at night while they are at rest, and the simultaneous jingling of all the bells strikes terror to the dogs; they turn their tails and leave the sheep, fearing the noise of the bells will lead to their exposure. The ratio of bells may be made to vary according to the size of the flock.

Merinos Improved.

Merinos are greatly improved, says the *American Agriculturist*, as mutton sheep, by crossing with Cotswold or Leicester; the former cross makes large, heavy bodied sheep, with a valuable medium, long combing wool; the latter cross is not so favorable, but is a good mutton sheep. Cross breeding must be done from year to year, and it is not a permanent operation, for after two or three crosses the product is not to be distinguished from the pure breed used for the male animal.

Keep the Good Calves.

As the cows come in, the best of the heifers may be selected for raising. There can be no better way to improve the stock of cows than to use a good bull and keep the best calves, well feeding and caring for them until matured. After these become cows a selection can be made for breeding, and only the best retained. In a few years the value of dairy cows may be doubled by this careful practice of selection.

The Coming Fair.

Special Field Premiums Offered by the Agricultural and Horticultural Society.

The managers of the Lancaster County Agricultural and Horticultural Society, have completed the premium list for their fall exhibition, from which we are permitted to announce in advance the following:

For the largest and best yield of wheat, from five acres, of the harvest of 1880, $10; second premium, $5; third premium, $2. For the largest and best yield of corn from five acres, crop of 1880, $10; second premium, $5; third premium, $2. All competitors for the above premiums will be required to pay an entry fee of two dollars, and submit a full statement of the kind of land on which the crop grew, the quantity and kind of fertilizers used, the time of sowing and the quantity of seed sown per acre, the acreage to be carefully measured by some disinterested party, and to be certified to by some magistrate authorized to administer oaths.

All entries for wheat must be made by the 1st of July, 1880, and those for corn by the 15th of September, 1880, and the entry fee paid to M. D. Kendig, secretary, Creswell, Lancaster county, Pa. The general premium list in pamphlet form will be published and distributed at an early day.

Exhibition September 29 and 30 and October 1st, 1880, at the Northern Market House, Lancaster, Pa.

Poultry.

How we Ought to House our Fowls.*

It is not a pleasant talk to review the opinions and ideas of other men, and especially so when the difference between two sets of opinions is so great that no harmony between them can be expected.

With all due deference and respect to Mr. Smedley, allowing all due candor to be exercised in criticising his ideas, it must be maintained that his premises are false. He is not on the track that will lead him to a logical conclusion, but assuming, as he does, a wrong standpoint, the conclusion will of necessity prove to be a corresponding one.

I do not desire to touch upon the first part of his article, for in it he merely tells us that he has imbibed some very advanced ideas as a farmer, but that time had modified most of these views considerably.

Taking Care of his Fowls.

The first point in his paper is the description of his "approved house" for the comfort of his flock. After the flock had become accustomed to their new quarters, he informs us that things did not go so well. I suppose not, for there is a decided difference between a hen roosting on a tree or fence and in a chicken house. The air of heaven had free access, and whatever foulness of air there was was swept away as by one sweep or current of air and the drippings could remain for quite a time before they touched the limb on which the fowl or fowls were perched, on the topmost rail in the fence, as their roosting place. Besides, such quarters cost very little to keep in order, for nature is its own purifier and restorer in many instances.

Poultry Houses do not Create Diseases.

But to believe for a single moment that a well built poultry house causes disease and death among fowls is as arbitrary as to believe that a well built barn, with a good roof, permits the rain to spoil the grain that is stored in it. We know that just the reverse is the truth. The secret of his bad luck must be conjectured, from the fact that we are left in entire ignorance as to the *modus operandi* of both house and fowls. An experienced breeder, however, would judge his house, without having seen it, to have been one with poor arrangements for proper ventilation and accommodation. And again, no experienced breeder would think of keeping so many fowls in one flock and in one house. You would not expect from 80 to 125 horses to do well in one yard and in one barn, running at will, nor so many sheep, hogs, etc., for only the other day an agent for a stock farm, in whose judgment as a competent man for the place we can place all confidence and trust, informed us that his hogs were not doing well because he had not proper room for them. This is only a single case, but furnishes us with an illustration for many others.

The House not the Cause.

The trouble that was brought upon his flock was not by any means caused by the house, if it was a well built and properly arranged house as to venti-

*A review of W. T. Smedley's article in the Germantown Telegraph, read before the Lancaster County Poultry Society by Rev. Tobias.

lation, etc. A comfortable house has never injured any family, and has never been blamed to have brought disease and death into the family circle; and just as little has a convenient and comfortable poultry house harmed the flock that was placed within its precincts. To house comfortably from 80 to 125 fowls requires a rather spacious house, and as I have said before, we know nothing of its dimensions, etc; but it may be presumed that his house was only one-fourth large enough for the large flock he kept in it, and thus the way was opened for the affliction he speaks of. Again, from 80 to 125 fowls are entirely to many for one flock. Not more than 50 at most ought to be permitted to run together. It is far better to have only 25 than even 50 to one flock. Instead of one flock he ought to have had at least, three, four or five, and his success would certainly have been all that could be desired.

Died of Apoplexy.

There is one thing of which he speaks, which shows indisputably that the care and attention was not what it ought to have been. He speaks of his hens dropping from the roost at night. This shows that they were gorged with food and died suddenly of apoplexy.

Wrong Again.

In speaking of hardy breeds, he is wrong when he asserts that the Black Spanish and Dominiques are among the hardiest. The Light Brahmas and Cochins take the lead, and will thrive much better under poor treatment and with poor shelter than almost any other variety.

How to Keep Fowls Healthy.

In summing up, let it be understood that in rearing poultry, either fancy breeds or the more common varieties, and to succeed in the business, we need first of all a splendid poultry house. This is rarely found. A house ought to be roomy, and the best apparatus for proper ventilation should be had in it. Whether you breed the finest or the commonest varieties, divide them up into small flocks—if possible, not more than twenty-five to a flock, rather less than more. Clean up the house two or three times a week, and keep such disinfectants in it as will keep the air pure and sweet continually.

Let the whitewash brush be applied to all the insides—not only walls, but partitions, etc. Exercise the greatest scrutiny in feeding your flocks; not by kindness in giving them a good warm house in winter and a comfortable and clean one in summer, are our fowls made to suffer—but improper feeding destroys as many birds, if not more, in my humble estimation, than cholera or any single disease that bears a name. Give them enough to eat, but not a particle more. This requires your personal attention and not that of an indifferent servant, who for the sake of getting out of and through with his work, dispatches it in the shortest manner possible. This being done, and well done, the success is guaranteed.

If you will institute a comparison between the two sides of Mr. S., viz: his first mode of having them run and roost at will on the one hand, and that of keeping them in his "approved house," sick, moping and dying on the other hand, and the final results in receiving more eggs under the first than under the second mode of treatment, seems plausible enough. But have you ever heard that two wrongs make one right? If the premises are false, the conclusion will be accordingly. I don't think that they paid for their feed in either case, for either condition was a very hard one indeed, and I do hope that the time will soon come when more attention of the right kind will be bestowed on our feathered pets. One word more and I have done. If Mr. Smedley's ill success can be attributed to any one thing, leaving out of sight all others that might be named, it is this—*bad feeding*. If, as his friend remarked, he was "killing them with kindness," his kindness run in the direction of killing them with food. This produced disorder, and was followed by a lack of appetite, which brought on a moping condition, and finally the bird ended its existence by dying. Others, again, gorged themselves and died suddenly of apoplexy. Discouraged and faint-hearted at his ill success, he cleared them out of the house, and they sought shelter on trees, fences and the like.

I repeat that in my estimation among young and old fowls more are killed by feeding them irregularly and immoderately than are carried off by disease.

Way down South trees, fences and outdoor shelter in general does well enough, but with us we need the best houses and the best care that can be given them, if our labors shall be crowned with success.

Breeding for Shape and Style.

In breeding for shape and style, I always look to the hen; a dumpy hen may breed fair pullets, but it is a hundred to one against their throwing reachey cocks; the hen has also most influence on the color of the stags and the breast and body of the pullets. The cock has most influence on the color of the pullet's hackle; that is to say, a cock that was well striped of his chicken feathers will have a tendency to throw heavily striped pullets; do not imagine that I advise breeding from a cock striped in hackle; when he has got his adult plumage, the brighter he is then the better, but if you want heavily marked pullets, be sure that your cock was striped as a chicken. I have proven this lots of times in black reds, piles and brown reds, but have never had a chance of trying it on duckwings. I first got the idea from noticing two yards of brown reds; one yard had hens with copper-colored hackles, and the other the brass hackles. I noticed that in both yards the majority of cockerels were like the hens in their immature plumage, though they both turned out much alike in the end. I do not put any faith in the adult plumage; it is the chicken plumage I want to see in a cock to breed pullets.

When you have got your birds let them run together till the hens show signs of laying, and then take away the cock and feed him well—cayenne, meat, bread, all in turns—and let him in with the hens for half an hour every morning, you will then have very few clear eggs. One of my cocks is certainly an old one—I don't know quite how old, but not under four years—and, treated like this, there was not a clear egg from fair hens, while other people were complaining of their bad luck. I give no corn, but meal mixed with the stimulant. When the season for breeding is over he must be well physiced and kept low for some time, or he will most likely die of apoplexy. If one is attacked sonse him into a pail of cold water for a minute, and then hold his head under a running tap of cold water, give him a dose of castor oil, and put him in a cool place; this will seldom fail in effecting a cure if taken in time.—From "Exhibition Games," in *Fanciers' Journal*.

Milk as a Poultry Food.

The *American Agriculturist* says we have been trying milk as poultry food during the winter and can confidently recommend it to villagers and farmers who keep one or more cows for family use. Where butter is made and skim milk is plenty, it is a very valuable addition to the fare of the poultry yard. One main difference between winter and spring laying is owing to the absence of animal food in winter. The milk supplies this, and is devoured with eagerness. The skim and buttermilk may be poured into the feeding trough, and kept constantly by the fowls, or it may be mixed with scalded meal of various grains. Indian meal is a good ration once a day, but it should be varied with oat or rye meal, and whole grain of wheat, buckwheat or barley. In a warm room with a good southern exposure, and plenty of light, there is no difficulty in getting plenty of eggs from early pullets, and this is the time when eggs are of great market value. Later in the season, when the broods come off, milk, which will then be more abundant, will be an excellent feed for chickens, turkeys, and all kinds of young poultry, and will give quite as good returns as when fed to pigs.

Burned Bones for Hens.

You can hardly give too much burned bones to your hens to provide the necessary amount of lime for egg-shells, and the next best thing for that purpose is oyster shells, which can be obtained by the barrel (and generally without cost, except taking away at hotels or restaurants in your nearest town.) My new tenant goes eighteen miles for them, and considers them cheap at that. The hens eat them when pounded into fragments as easily as they pick up the shelled corn, and they furnish the needed material for the egg-shell more completely than anything else. I do not quite believe in giving broken earthenware as some propose doing. The sharp corners are more likely to cut or otherwise injure the crop than than the more easily digested oyster shells.—*Poultry World*.

Chicken Cholera.

When fowls do not have access to sharp gravel or coarse sand, being fed too much whole corn, will sometimes produce cholera. New damp corn, or grass which has become succulent after protracted rains, if fed mostly to fowls, will produce cholera. The gas from fermented manure piles will cause it. If fowls drink filthy, stagnant water for a length of time, it will produce it. Wheat screenings containing much smut will get fowls out of condition, if it will not produce cholera. Sometimes when too many potatoes are used with cornmeal and wheat bran dough, cholera will be produced. In using potatoes, add a tablespoonful each of salt and cayenne pepper to two gallons of meal and bran and potatoes.

Fattened Poultry.

Nicely fattened poultry always sells quick. When offered for sale it should not have crops filled with feed; the bird should fast at least twelve hours before being killed. They may have water in the morning before killing time, but no feed.

The Fattening Process

Will be assisted by the use of some condiments, as Poultry Powder, Spratt's Food, Parish's Chemical Food, etc. These act as Tonics, improve the appetite and digestion, and are otherwise of use.

LITERARY AND PERSONAL.

CIRCULARS OF INFORMATION of the Bureau of Education, No. 1, 1880. College libraries as aids to instruction, Washington, D. C. 27 pp., royal 8 vo. Very instructive and highly useful to all libraries, public or private, large or small.

THE TOURJEE TOURIST, Boston, No. 1, Vol. 1, April, 1880. A 12 pp. quarto, devoted to the interests of tourists and travelers, and yet interesting to "stay-at-homes." Published by E. Tourjee, monthly, at one dollar per year.

We would here respectfully ask what has become of the "Woodruff Expedition, revised?" and the pictorial journal "Around the World?" Although not a member, we have a collateral interest in it and would like to know thereof.

THE AMERICAN ENTOMOLOGIST is at hand, for the month of May, filled with matter appropriate to the season, and we are right glad to see it again while sight is vouchsafed to us; for not having received a visit from it since February last, so sensitive have we become through an unrequited experience in publishing, that we had feared the "Ent." unhappily might have been compelled again to *hibernate* for a more propitious season. But as the present number is marked "5" we infer that 3 and 4 may have, by this time, reached Bombay or Alaska.

REPORT UPON THE CONDITION OF CROPS AND LIVE STOCK to April 1880 (and also for that month) being the 23d special report of the Department of Agriculture. On the whole the report is quite favorable, and corresponds with the local reports made to the Lancaster society at its May meeting. The report exhibits an increase of about 13 per cent. in the acreage of wheat, over that of last year, and that the condition of the crop for the whole country is precisely the same. True, there is some "Hessian fly" in the South, and from other sources also some "Tobacco fly," but on the whole, at this date, things look hopeful.

RATES OF POSTAGE and classification of mail matter, compiled from the Postal Laws and Regulations, and from Rulings of the Post Office Department with suggestions to the public by James H. Marshall, Postmaster, Lancaster, Pa. We are under obligations to the compiler of this neat little 12 mo. of 22 pp. which contains in a nutshell all that any outsider of ordinary intelligence need know about the practical working of his local post office, and yet blunders are continually made in the stamping, non-stamping and mailing of letters, just as if a certain amount of ignorance, illiteracy, and sometimes absolute dishonesty, must forever remain in the world.

TWENTY-SEVENTH ANNUAL EXHIBITION of the Pennsylvania State Agricultural Society, to be held in the Main Centennial Building, Fairmount Park, Philadelphia, September 6th to 18th, 1880. Preliminary abstract for a list of premiums for horses, cattle and swine.

☞The complete list of premiums, with the prizes in this department increased, will be published at an early day. 12 pp. royal octavo. Immediately after the close of the State Fair (October 20, 1880) the International Exhibition of sheep, wool and wool products, will be opened in the same building and on the Centennial grounds; thus rendering the two exhibitions continuous, closing on Saturday, September 25th. Go and see.

The first anniversary long-talk ever delivered before the Improved Order of Red Men, on St. Tammany's day, May 12, 1837, in the Trinity Church, Baltimore, Md. by Past Sachem John F. Weishampel Sr., also a few facts concerning the origin of the Order, and an account of the death of its founder. Published upon resolution of Can-as-sa-te-go Tribe of Lancaster, Pa. by A. Z. Ringwalt, K. W., 205 W. King st., Lancaster, Pa. Price 10 cts., post paid, or $1.00 per dozen. We are under obligations to the venerable author and printer of this interesting little work, and value it chiefly as a coming from him, and as a local historical relic of the past. No doubt it will abundantly answer the questions who? where? and what? are the Red Men. 18 pp., 8 vo., including the covers, the last of which contain a poem dedicated to the Order by the author aforesaid.

THE SUGAR BEET—Devoted to the cultivation and utilization of the sugar beet, Philadelphia, April, 1880, an illustrated copy of vol. 1 No. 2, of this splendidly gotten-up journal has been received, and if the success of the beet-sugar enterprise is at all in harmony with the quality of this, its most prominent, able and progressive champion, it is bound to succeed. In the reports from foreign countries where the enterprise has been the longest and most perseveringly pursued the result seems to have been most successful. Germany produced for 1879,80, 410,000 tons; France, 170,000; Austria, 385,000; Russia, 225,000; Belgium, 60,000, and Holland 25,000 tons of sugar. The business is increasing and a new refinery of sugar is to be established in Switzerland the present year with a capital of $250,000. It is possible that the subject of beet sugar will only gain a footing in Lancaster county when tobacco begins to lose its footing. Other localities may then have the start of her.

MISCELLANEOUS.

The Fruit Evaporator.

Within a few years the evaporation of fruit by improved processes, under the stimulus of the current high prices for the product, has received much attention. American evaporated fruits have gained a great reputation in Europe, and now constitute an important item in commerce. The demand, market and price within the last year has added new interest and importance to the business.

Perhaps the most significant fact in this connection is, that simpler and cheaper, yet philosophical evaporators have been constructed, and are now going into use as an auxiliary to the farmer and orchardist. Fruit growers should closely investigate and turn to account upon their own premises much, if not all, of the fruit that usually goes to waste or is sold at unremunerative prices. The fact that raisins are sold here for 10 cents per pound, after a carriage of thousands of miles, and evaporated pared peaches is worth 25 to 30 cents per pound, suggests at least investigation.

Seeds and Plants.

We would call the attention of those of our readers who contemplate purchasing seeds or plants during the coming season, to the advertisement of Peter Henderson & Co., New York, now appearing in our columns. Peter Henderson, the senior member of the firm, is known far and wide as a horticultural writer and authority. His books, "Gardening for Profit," "Practical Floriculture," and "Gardening for Pleasure," are now in the hands of thousands. The green-house establishment of this firm covers three acres in green-houses and employs upwards of fifty hands. Millions of plants are shipped by mail or express annually to every State and Territory. Their seed warehouse is the most extensive in the city of New York, and every order received is certain to be filled with goods of the best quality, and as they are producers as well as dealers, "everything for the garden" will be sold at low rates. Feb-3m

"Bo Peep"

This exquisitely wrought steel plate engraving, by the well-known artist, J. A. J. Wilcox, from a painting by that world famous German artist, Meyer Von Bremen, is one of the most beautiful and artistic engravings ever published. A mother and her child are away from the dusty town for an afternoon's recreating in the "Sylvan Wild" of Germany; golden pages are added to life's book of "Happy Hours." It is a genuine steel engraving, and so excellent in subject and body that its possessor can never outgrow it—become he or she however æsthetic in art. Printed on 22x28 paper. Price $3.00. Published by R. H. Curran & Co., 22 School street, Boston, Mass. Apr-1t.

The Cooley Creamer

This method of "deep-setting of milk" is coming into so general use, that at the recent dairy fair in New York, it was not shown as a "novelty," but took its place as a common and indispensable adjunct to the dairy. With a Cooley Creamer a dairyman is entirely independent of the weather, and his product is uniform at all times. It is in this, as well as in its convenience, that the Cooley process of setting milk commends itself to all who make butter.

From our foreign exchanges we infer that it has been quite extensively introduced into use in Great Britain.—*Albany Country Gentleman.* Feb-1m.

Inventors, Take Notice.

To any of the readers of THE FARMER who desire a patent we would refer them to William R. Gerhart, Solicitor of Patents, at No. 34 North Duke street, (2d floor) Lancaster, Pa. He has opened communication with the Patent Office, at Washington, and is prepared to push claims with promptness and dispatch. Apr-1m

Ballard, Branch & Co.

In another column will be found the advertisement of Ballard, Branch & Co. Apr-1t

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.

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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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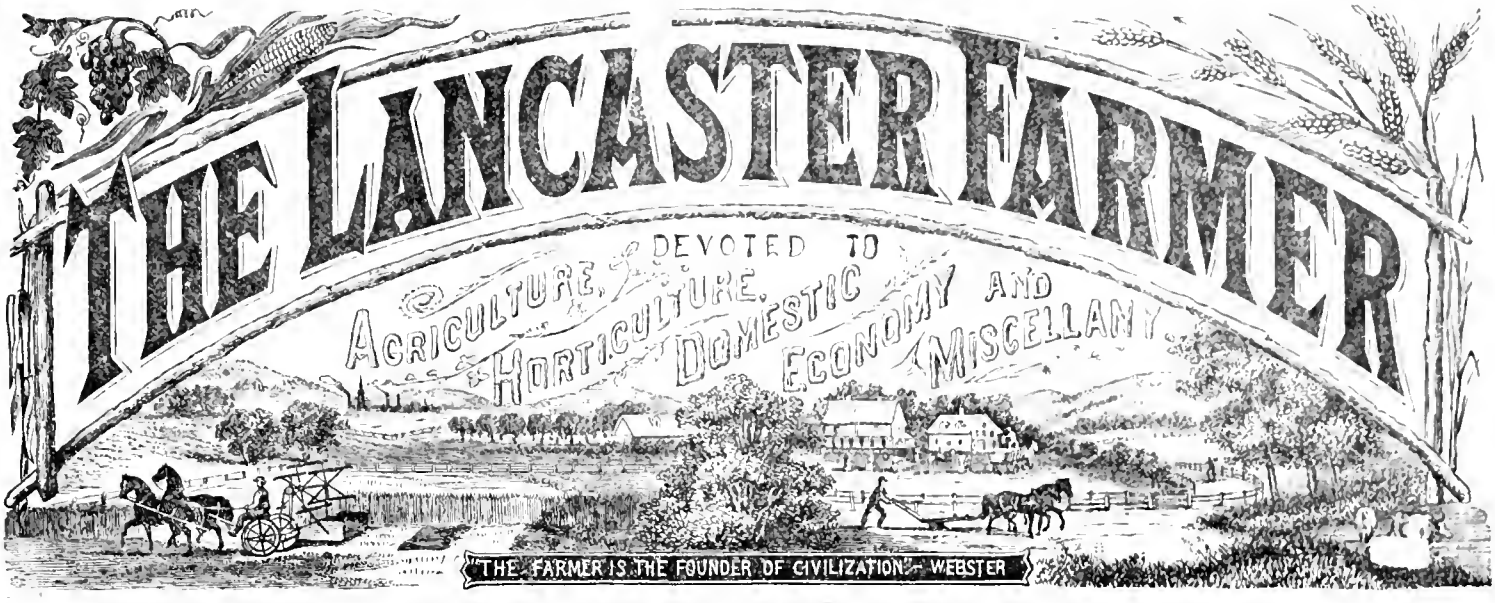

Dr. S. S. RATHVON, Editor. LANCASTER, PA., JUNE, 1880. JOHN A. HIESTAND, Publisher.

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

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PENNSYLVANIA RAILROAD SCHEDULE.

Trains LEAVE the Depot in this city, as follows:

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*..	2:40 a. m.	4:05 a. m.
Way Passenger†	5:00 a. m.	7:50 a. m.
Niagara Express.....	10:05 a. m.	11:20 a. m.
Hanover Accommodation..	10:10 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy.....	11:05 a. m.	12:40 p. m.
No. 2 via Columbia.....	11:07 a. m.	12:55 p. m.
Sunday Mail.....	10:50 a. m.	12:40 p. m.
Fast Line*.	2:10 p. m.	3:25 p. m.
Frederick Accommodation.	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom.....	5:45 p. m.	7:40 p. m.
Columbia Accommodation..	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express.....	7:25 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.
Atlantic Express*.....	12:25 a. m.	3:00 a. m.
Philadelphia Express*.....	4:10 a. m.	7:00 a. m.
Fast Line*.....	5:20 a. m.	7:40 a. m.
Harrisburg Express.....	7:35 a. m.	10:00 a. m.
Columbia Accommodation.	9.10 p. m.	12:0 p. m.
Pacific Express*.....	1:25 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*.....	5:20 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.

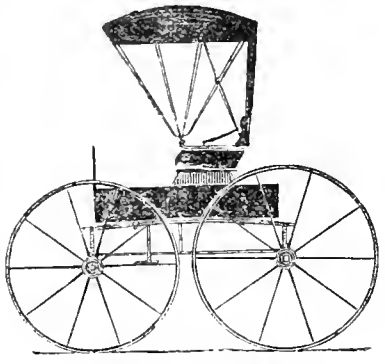
The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 2:10 p. m., and runs to Frederick.

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,



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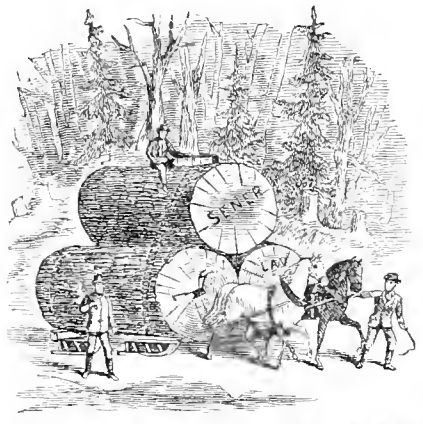

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LANCASTER, PA.

Nov-1y

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor. LANCASTER, PA., JUNE, 1880. Vol. XII. No. 6.

EDITORIAL.

THE PREMIUM LIST.

In this number of THE FARMER we publish the premium list of the *exhibition* of the Agricultural and Horticultural Society of Lancaster county, to be held in the NORTHERN MARKET HOUSE, Lancaster city, on Wednesday, Thursday and Friday, the 29th and 30th of September, and the 1st of October next, in addition to which 3,000 copies have been published in pamphlet form, to be distributed among the people "where they can do the most good." Nearly 500 premiums are offered, from 25 cents up to $10.00, amounting to about $600. So far the season has been a propitious one, and if it continues so until the end our farmers, housekeepers, mechanics and merchants will have an opportunity to make such a display of their products and their handicraft as was never before brought together in Lancaster county. We admonish them to examine carefully the list in the various industries invited to be placed on exhibition. We know that the material will be in the county in almost any event, and will need only a little energy, enterprise and local pride to place it before the people. Everything will be under cover and supervised by careful officers and their attendants, so that exhibitors may feel assured that their property will be in safe hands and free from damage. As the State Fair will be over before ours has commenced, there will be no conflict in that quarter, therefore we are free and untrammeled by outside contingencies.

SWEET APPLES.

"Fifty or sixty years ago sweet apples were regarded as a special feature in an orchard. In fact, however small an orchard might be, there were always two or three of the sweet varieties. The early harvest apple was particularly desirable. They began to ripen in August and became very soft and possessed a fine flavor. Then there was the Sweet Vandevere, which was a good winter variety, and was to be found in every orchard. This apple was used for drying, for winter use, and was besides being made into pies, boiled and eaten with sauce, intermixed with dough dumplings. They were much prized, especially by the German farmers, and helped to make out many dinners when other dried fruit was scarce.

"After this time the desire for sweet apples declined, and to such an extent that not a single tree would be found in an orchard of a hundred. But within the last five years they have begun to come into favor again, and now there is seldom an orchard set out in which there are not three or four choice sweets, but much superior to those formerly grown, and much appreciated."

The above, from the *Germantown Telegraph*, speaks of a subject within the memories of our boyhood, and to a point on which we have been much exercised in our later years. But the veteran editor has omitted one variety of sweet apple which was considered the *ne plus ultra* among the sweets in our youth, or else has alluded to it under another name. We mean what was then called in this county the "Paradise apple." No sweet apple cultivated then or now, in our estimation, and in the estimation of farmers generally, could at all approach the Paradise. We can still vividly recall its beautiful form, its smooth skin, its brown cheek, its luscious semi-granular pulp, and its spicy flavor. No townsman in our early days, who ordered his supply of winter apples, failed to include half a dozen bushels or more of the Paradise. When ripe the pulp was of a pale buff tint, and the seed cavities almost as large as those of the "Bellflower," and they were singularly free from imperfections or insect infestations; but finally they passed away, and for years we have not seen a single specimen of them worthy of the name. They were esteemed especially as a fall and winter eating apple, and we have had them in fine flavor and condition as late as the first of April. They were generally valued too highly to dry, (a sweet pippin being usually employed for that purpose,) but those who *did* dry them, you may depend upon it, enjoyed the luxury of "schnitts and knepf," far beyond that of their neighbors. English people, or those who had *undutched* themselves, mincingly spoke of this dish as "snits and nep," to the derision of those who employed the more emphatic and germanic name. Accompanying this "sauce, intermixed with dough dumplings," (what an awkward effort to translate *schnitts und knepf*,) was always boiled a nice piece of "flitch" (bacon) beautifully laminated with "a streak of lean and a streak of fat," and, so firmly was this custom fixed, that the one invariably suggested the other, and they seemed "one and inseparable." When we became a housekeeper and had less

YELLOW ROOT.
(*Hydrastis canadensis.*)

open air exercise than when we were a boy on the farm, we initiated what we considered an improvement in the preparation of the knepf, by the introduction of yeast, to make them light and spongy—something like a "sponge-cake"—with less lard and more egg. When this mass is cut open it immediately absorbs the sweet juice of the schnitts and makes it not only more edible, but, we think, more digestible. It is pleasant to us to know that better varieties of the sweet apple than the old varieties are finding favor among apple-growers, but we are doubtful whether they can find any variety superior to the *old Paradise*.

YELLOW ROOT.

This is an old plant and was first cultivated in England by Philip Miller, in 1759, and was called a *Bog-plant*. Dr. Muhlenberg introduced it into his catalogue of the plants of Lancaster county, but with a doubt. Dr. Barton was of opinion that Mr. Walter's species (*H. carolinensis*) was only a local variety of the same. It appears to be a unique species—or was so in 1817, when Dr. Barton wrote, and was first discovered and described by Mr. John Ellis, to whom science is indebted for its generic name. The main root consists of a tortuous shaft, from which proceed a great number of large fibrous rootlets, which are of a brighter yellow than the main root. It is rather a rare plant in Pennsylvania, except west of the Allegheny Mountains. Sixty years ago it was considered very rare in Lancaster county, and perhaps is so still, but Dr. Muhlenberg appears to have found it here. Although Dr. Barton never found it, and in his work on "Medical Botany" he made his illustrations from a dried specimen of Dr. M.'s *Herbarium*. Prof. Porter includes it in his catalogue of the plants of Lancaster county, and quotes it as existing in rich woods, near Lancaster, and, on the authority of Prof. Haldeman, also in Conoy township. Mr. Stauffer found what seemed to be a variety of it in a woods near Mount Joy, some years ago, from which he made the above illustration. Its medicinal virtues, if any, were said to reside in the root, hence spirituous infusions of it were recommended by rural practitioners for their tonic effect. A cold, strained infusion was used in cases of inflammation of the eyes. On the recommendation of Prof. Barton, it was introduced into the American Dispensatories. According to Dr. Barton, "when dried it has a strong and somewhat narcotic odor, and is exceedingly bitter." He thought, however, that it was rather unfortunate that its use was not confined to its tonic virtues, "which it undoubtedly possessed," but it was vaguely claimed that the Cherokee Indians used it as a cure for *cancer*. That vague claim, however, endorsed by an *Indian doctor*, seemed to give it a *quasi* character. Dr. B. himself, however, was unwilling to believe that it possessed any properties sufficiently active, or of such a nature, as to lead to any expectation of being serviceable in cases of cancer, although it probably was one of those vegetable bases upon which might be hypothecated a quack remedy for that dangerous disorder.

SWALLOWS.

"Die schwalme schkippe iwwer's feld,
Die veddersecht is die bescht!
Un sehnscht du dort am giebeleck
'N haus von schtopple und von dreck?
Sell is en schwalme-nescht."

"Die junge leie allweils schtill,
Un schlofe alle fescht.
Ward bis die alte kriege werm
No'd herscht du awwer gross gelerm—
Von meiler in dem nescht."

"When *I* was a boy," remarked a retired farmer to a friend who was on a visit to the village of Lititz, "farmers, in building their barns, invariably left a number of oblong holes in the gables, *first* for ventilation, and *secondly* for the free ingress and egress of the swallows; but now these loopholes are omitted, and a fancy latticed or slatted chimney is erected on the apex of the roof, through which it is impossible for a swallow or any other bird to pass in or out." It was just so when *we* were a boy, and the result was that large colonies of the common Barn Swallows (*Hirundo horreorum*) built multitudes of their mud-nests all along the rafters of the roof, in which they had dry and cozy quarters for their young broods, and where they cared for and fed them, until they were able to provide for themselves. They also selected the overshots of barns, piers of bridges, unoccupied outhouses, wagon sheds and other like places, but the great majority of them preferred the elevated lofts of barns. Mr. Gentry, who has

made the observation of the habits of birds a life study says, "No one of all the North American birds is more abundant and better known than the Barn Swallow. From its first appearance in early May, till its departure, about the 15th of September, the immense good which it accomplishes should prompt us to accord to it a generous welcome, and bestow upon it the full protection of the laws. It frequents our pastures where the cattle are grazing, and kindly relieves them of their insect tormenters, even alighting on their backs for this purpose; it puts an end to the insects that infest our fruits and vegetables, and indirectly rids man of many of his most inveterate insect foes. It may be justly characterized as an unmixed good. Not the slightest tinge of evil, we are happy to say, exists in its nature, to mar the happy results which flow from its labors." Its food consists entirely of insects from its first appearance in the spring until its departure in the fall. Its sojourn in our latitude is about fourmonths, and during that period the insects it directly destroys, and indirectly prevents, amount to many millions—even in a single individual—what must it, therefore, amount to in a colony, or by the whole number that visit the entire country?

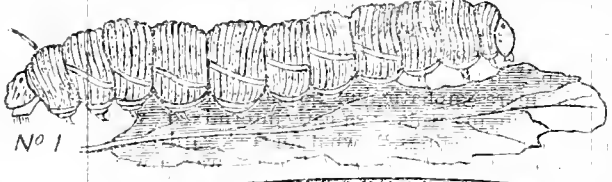
Among the many individuals which Mr. Gentry has examined he found in their stomachs nothing but insects, and of these eight species belonged to the order DIPTERA (Two-winged Flies) including a very large number of Moschitoes, six species of COLEOPTERA (Beetles), eight species of LEPIDOPTERA (Butterflies and Moths), including the Apple-codling and the parent of the Canker-worm, besides a large number of others too decomposed to identify; and this characteristic distinguishes the whole families of Swallows and Swifts, among which are included our familiar little friends the House Martins and Chimney-birds. Another interesting observer, whose name and paper we cannot at present lay our hands upon, shot half a dozen Swallows each month of their sojourn in his locality, and found from three to five hundred insects in their stomachs at one time. The highest number was found in the month of June, and the lowest in the month of August, and no doubt millions of Hessian flies fall victims to their rapacity late in summer. They feed almost exclusively while on the wing, in the morning and evening, or during cloudy days. When a rain is threatening insects instinctively keep nearer the earth, and during such times the Swallows will be found skimming near the ground, as if in play, in quest of them; and then, too, naughty boys and sensless men will be found occupying a stand, with bat or bat, attempting to strike them down, in which *manly* sport they too often succeed. A great many winged insects that remain hidden or asleep during the day, fly abroad during the evening and early hours of the night, and it is then that the Swallows and the Bats sally forth to break their daily fast, and, although they seem to be gyrating without purpose through the air, yet they know what they are about, for objects too small for us to recognize, are immediately detected by their quick, keen sight, and gobbled up in vast numbers. Perhaps it is true that "*one* Swallow never made a summer," but it is truer still that our summers might become intolerable if it were not for Bats and Swallows and their animal co-laborers.

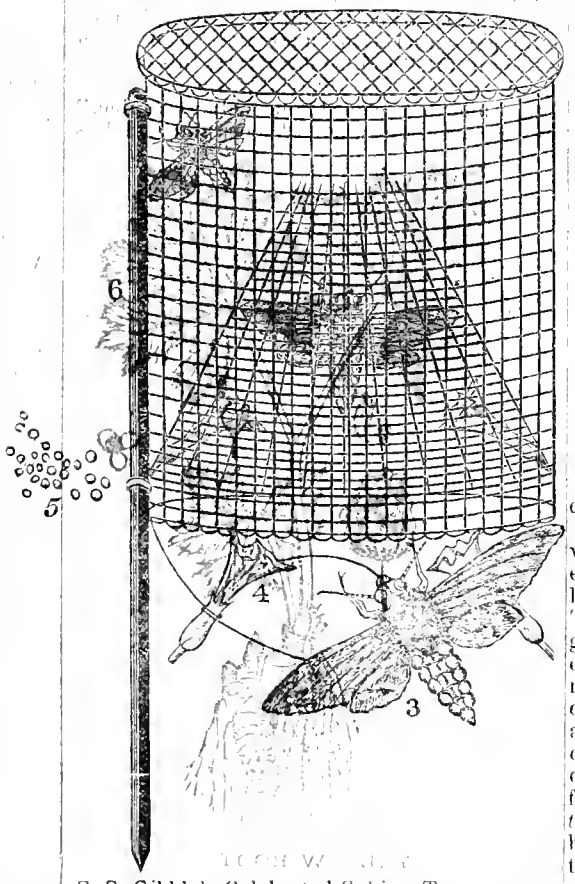
In conclusion we would admonish all farmers who have barns, or who contemplate building new ones, to make ample provisions for the ingress and egress of Swallows. Perhaps all farmers are not aware that "Barn-weevils" (*Sitophilis granarius*), have ample wings and fly abroad to meet their mates, and deposit their eggs on the wheat heads in the fields or in the stack. Give Swallows a chance and they will pick off hundreds of them on the wing or otherwise.

SOMETHING NEW FOR TOBACCO-GROWERS.

Tobacco-growing has many drawbacks in the form of insect infestations, and it is solely to reflect even the feeblest ray of light upon the subject of *remedies* for circumventing these enemies that we publish the below illustrations and the following remarks upon the same, believing that it is as well in tobacco-growing as in other things to "prove all things and hold fast that which is good."

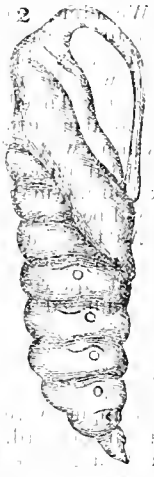
There are few men—especially in rural homes—that are blessed with the sense of sight, who have not observed, even from their boyhood, that the "Hawk-moths" are partial to the nectar in the flowers of the "Jimson weed," "Thorn-apple," and especially that particular species of moth which deposits the eggs on the plant from which develops the green "Sphinx" or "Horn-worm." Most of the kind of men alluded to may have made a general observation of this, but only, perhaps, the most practical have made more extended, deeper and more thorough observations, and they would necessarily notice some of the distinguishing habits of these insects. When any insect, which in a poised position sips the nectar from a flower, has exhausted the flower-cup, it almost invariably, if not constantly, rises more or less perpendicularly before it darts off horizontally, and this habit of the insect has mainly created the impulse or idea that has culminated in the *Gibble Trap*, which is represented by the accompanying illustrations. Any insect that is captured in a box-trap of any kind will attempt to make its escape through the top if light is admitted through it, even if there is a hole in the side through which it might escape. A common fly will often persevere in attempting to pass through the top of a window pane, even when the lower part of the sash is raised or an open door is standing two or three feet on either side of it. Perching birds, or even chickens, and especially turkeys, will make a dozen attempts to escape through the top of a coop before they would make one to creep under, unless they were domesticated and free to go in and out when and where they pleased.





S. S. Gibble's Celebrated Sphinx Trap.

The common Jimson weed (*Datura stramonium.*) has long been known as the favorite food plant of both the Northern and Southern Tobacco Hawk-moths, of which there are at least two distinct species; namely, the "Carolina" and the "Five-spotted," technically named *Sphinx carolina, et Sphinx quinquemaculata.*) This *fact* has been long since known and availed of by some Southern cultivators, who have poisoned the flowers of the plants, and when the moths partook of it they died by scores. But, as tampering with poisons is objectionable to many people, the poison remedy has never become of general application, hence the people have been looking trapward, and behold here it is, as per illustration, of which No. 1 is the *Larva* and No. 2 the *Pupa* of the moth of natural size. No. 3 is the *Imago* or the moth itself reduced in size. No. 4 is a flower of the *Stramonium*, and No. 5 illustrates the eggs about their natural size. No. 6 is the trap itself, in position, very much reduced in size.



The moths of Horn-worms are *crepuscularians*, or twilight fliers, and they continue abroad in the evening as late as 9 or 10 o'clock. The forepart of the evening is occupied in breaking their fast on the nectar of the Jimson weed, as well as on other trumpet flowers, but mainly on that named. It seems evident, therefore, that the traps would require no attention except a very short time after the labors of the day in other directions have closed. An hour or half hour daily spent in baiting the traps with fresh flowers, and about as long a time in the early morning in killing the captured moths, is all the time that would be occupied, and that labor could be performed by children.

The female moth of the tobacco Horn-worm deposits from three to six hundred eggs, (of course not all at one time,) but here and there a few, at several times. Take four hundred as the basis of contingent possibilities, and it will become evident that if we can catch but a single female moth in an evening, in a trap, we practically destroy *four hundred Horn-worms*; and that number of voracious tobacco chewers can do a vast deal of damage during their season. If you capture *five* females the result will be equivalent to *two thousand*, and *ten* would double that number, and so on *ad infinitum*. Sixteen of these sphinx moths have been captured in a single trap in one night. For the *practical* details of this trap, its price and other matters relating thereto, the inquirer had best address a postal card to the proprietor of the trap, Mt. Joy, Pa., soliciting a circular. We can only vouch for the *principle*, which we believe to be sound.

TOBACCO PESTS.

The insects submitted to my examination by Mr. J. Huffman Hershey, of Rohrerstown, proved to be three distinct species, two of them belonging to the family *Halticidæ*, commonly called "Flea-Beetle," the posterior thighs being greatly enlarged, giving them the power to leap a considerable distance. They were formerly included in the old genus *Haltica*, but have been removed to the genus *Epitrix*.

There were but two specimens of these flea-beetles in the lot, one being *E. cucumeris*, of Dr. Harris. This is black all over except the *antennæ* and the feet. The thorax is thickly punctured, and the *elytræ*, or wing-covers,

conspicuously striated, and punctured between the striæ. The other specimen, I have little doubt, is the *Epitrix pubescens* of Illiger. It is slightly more oblong, and not quite so convex as the former; but otherwise is about the same in size. The whole of the body beneath is of a dull black color, including also the posterior thighs. The feet, the antennæ, (which are slightly serrated along the anterior margin) and the whole of the dorsal, or upper part of the body, are of a honey yellow color, except about a third middle portion of the wing-covers, which is a dusky black. The thorax is of a much brighter color than the other upper portions of the body, &c., and the eyes are very black, their composite character being more distinct than in the first named species; and except the thorax the upper and lower part of the whole body is more than "slightly pubescent." This pubescence is conspicuously in rows between the striæ of the wing-covers, and along the margins of the abdominal segments.

These insects are about 1-16 of an inch in length; but small as they are they are capable of doing a great deal of damage when they become numerous, and it appears from all parts of the country they *are* already very numerous, and also very destructive. These Halticans are also numerous in species, but even the same species will feed on different species of plants. The potato, the cabbage, different kinds of beets, the turnip, radishes, cress, horseradish, the "jimson weed," common nettle, and even the "deadly nightshade," are all infested by different species, and often the same species. Coincident with a dozen other species of insects that heretofore were partial to other kinds of vegetation, they now attack the tobbaco beds, when the plant is in its most tender and precarious condition. It is surprising how fond the grasshoppers, the tree crickets and several species of HEMIPTERA have become of Lancaster county tobacco. Tobacco is becoming king; everything, from a "snow flea" to an "elephant," is in a fair way of becoming a tobacco chewer.

As to a remedy there doubtless are several that would be effective if we could reach them, but they leap off the plants and hide themselves so quickly that it would be difficult to apply a dry remedy. A solution of lime has been used very effectively both in England and America in destroying the cucumber, turnip and potato flea beetles. Liquid Paris green would doubtless have a similar effect, applied early in the morning, before they become too "lively." If they hide under clods saturate them with the liquid.

But the third species is much more numerous and more minute, yet fully, if not more destructive than the "flea beetles." This insect belongs not only to a different genus and a different family, but also to a different order of insects. It is no larger than a grain of the finest gunpowder, is a very active runner, and is also able to leap to a considerable distance. From a microscopic examination it agrees with Dr. Fitch's "Garden Flea," (*Smynthurus hortensis,*) described by him about 20 years ago, in his eighth report on the "Noxious Insects of New York." This insect belongs to the apterous or wingless order, THYSANURA, and family PODURIDÆ, commonly called "Spring Tails," "Snow Fleas," "Garden Fleas," "Field Fleas," etc., etc. Dr. Fitch described six or more species of these insects, and also five varieties of the *hortensis* three of which I recognized among the ten individuals examined—the *juvenilis, basalis, dorsalis, apicalis* and *maturis*—but I think, as *he* thought at the time, that these were all the same species in different stages of development.

These insects are very peculiar in their structure. When they are viewed from the upper side (dorsal view) the most conspicuous division of the body are a proportionally large head and abdomen, perfectly smooth and plump, without any segmental cross lines. The thorax seems to be confluent with the abdomen. Beneath are some transverse wrinkles, indicating segmental divisions. The antennæ are long, (three-fourths as long as the body,) elbowed about the middle, and composed of nine joints, six very short and three very long. Projecting out from the hind end of the abdomen is a cone-shaped process composed of three distinctly marked segmental lines, that appears to be a caudal termination of the body. On the lower side of the abdomen, and near its end, is a forked member (a spring-tail) which lies folded up against the under side and reaches as far forward as the head, in which lies its leaping power. Its feet, six in number, are united apparently to the front end of the abdominal part of the body, which from a ventral view, exhibits a rudimental *sternum*, compensating for the absence of the usual thorax in insects generally. Of course it has neither wings nor wing covers, and from a top view *might* be mistaken for a small black spider by a novice, if he did not know that a spider has eight feet, and that the head and thorax are confluent, instead of the thorax and abdomen. On one occasion, Geo. W. Mehaffey, esq., of Marietta, sent me half a gill of a species allied to those above (the "Snow flea," *Podura nivea,*) which he found in his garden-walk, like small heaps of gunpowder, and of which he could have gathered a quart or more, but they disappeared within a day or two. Mr. Mehaffey informs us that he used "Persian

CEDAR BIRD.
(*Ampelis cedorum, Sel.*)

Insect Powder" against the depredations of the "Snow fleas" in his garden successfully, and that his tenant used a mixture of sulphur and assafœtida with satisfactory effect on his tobacco beds.

These insects are capable of bearing a low degree of temperature—indeed, they are frequently found covering the surface of snow, from which comes the name "Snow flea," so that they may be considered the first insects that would attack early vegetation in the spring. They, too, it would appear, have been attracted by the young and tender narcotic weed.

For the past two seasons our tobacco growers have been complaining of these little pests under the names of "black fly," "black spider," &c., and I have frequently solicited specimens, but all in vain. My opinion is that they will prove greater enemies to the tobacco plant than either the halticans, the tree crickets, or the horn worms; inasmuch as they appear earlier, can stand more cold, and puncture or eat the seed leaves as soon as they appear, into thousands of minute holes, and, moreover, are too small to be readily seen, and from their leaping facilities are able to escape or secrete themselves. These insects for many years have been alternately depredating upon different species of vegetation, especially garden crops, but there are some people who allege that they are altogether harmless. Their larval and pupal histories seem to be unknown. They appear during the months of May and June, and by the 1st of July they have all disappeared, and nothing is seen of them again until the following spring. They remain, however, long enough to damage the early stages of the tobacco crop, and when they leave they consign what is left to the tender care of a numerous line of successors.

As a remedy, finely pulverized brimstone (flour of sulphur) has been highly recommended. They are very delicate in their structure, and cannot be taken between the fingers without crushing them—something like aphids in this respect—therefore we should suppose that any remedy effectual in the destruction of aphids would be equally so in its application to this species. Tobacco seed beds are necessarily not very large areas, therefore I would suggest as an early preparation, a thorough pulverization of the soil, and copious drenching with scalding water for three or four days before the seed is sown; for evidently, the first stages of these insects must be passed under ground. The soil should be loose so that the hot water can penetrate, and the drenching should be done on the warmest and dryest days. Under such circumstances the insects might naturally be supposed to be nearest the surface. It might also destroy a species of small centipedes which girdle or eat off the young plants. No man who attempts to raise tobacco in these days can hope to succeed without due attention to its various insect enemies.

CEDAR BIRD.

This beautifully dove-colored bird has a number of *other* common names, by which it is known in various localities, or by different persons in the same locality; but under none of those names is it more unpopular than by that of "cherry bird," because of the havoc it sometimes commits upon the cherry crop, especially when the crop happens to be a small and very desirable one. In addition to the two common names already mentioned, it is also known as the "Wax-wing," "Wax-chatterer," "Juniper-bird," &c., &c. A few of the "secondary" feathers on the wings of the adult males are terminated by small, oblong, flattened lobes, resembling scarlet sealing-wax, hence the name wax-wing. These birds appear in the early part of the season, in small flocks, and are somewhat nomadic in their habits, changing their quarters according to the attainable supply of food. Early in June, however, the flocks break up into pairs, and then the building of nests, laying of eggs, incubation, and the rearing of the young brood become the all-absorbing occupation, during which time various species of insects constitute, at least a part of their fare, including different kinds of DIPTERA—two-winged flies—also, aphids, bees, slugs, the larvæ of various species of moths and butterflies, &c., &c. At the end of the breeding season, towards fall, they become again gregarious and less insectivorous, and consequently more frugivorous, feeding on various kinds of autumn berries. It is as a "cherry-bird" that it is most obnoxious to the farmer and fruit-grower. We cannot say, however, that we would recommend a total and indiscriminate slaughter of them, for after the cherry season is over there is not much on the farm that they are particularly destructive to which is of any special value to the farmer, and during the breeding season Mr. Gentry enumerated at least twenty-five species of insects that they feed on, and some of these are of the most prolific and destructive kinds. Some remedy can surely be adopted to keep them off the cherry trees, and thus compound with them. In our early days they were quite abundant, and towards fall were very fat, and, although not large, they were considered a good game bird. We believe the insects they destroy during the breeding season, will more than compensate for all the valuable fruit they destroy. Of late years they have not been so numerous as

in former years, and if in our advanced ideas we attempt to increase the quantity and quality of our fruits, we need not be astonished if these birds should improve also in their tastes.

ELIZABETH STOCK FARM JERSEYS.

As this breed of cattle is now attracting more than usual attention, it is in order to refer to them, especially when we can note the fact that one of the best bred and kept herds in the country is owned and kept in our own county. In the extreme northern end of Lancaster county, near the little village of Brickerville, nestles on the southern slope of the South Mountain the once famous "Elizabeth Furnace property," but now more widely known "Elizabeth Stock Farms."

Here the breeding of Jersey cattle is made a specialty. The habits, the nature and the capacity of the breed is studied as the breeders of trotting horses are to-day studying the trotting horse pedigree and problem.

Cows only of the best individual quality, as is shown by accurately kept records of performance at the pail, are retained for breeding; and only such bulls used as are from the best known strains of blood, backed by immediate ancestors of worth. No known poor animal is kept or used—but sent to the shambles—and from the rigorous enforcement of such determination has come the very high degree of individual excellence to which this herd as a whole has attained. It takes considerable nerve and backbone on the part of a breeder to *always* do this, but that it pays in the end there is no doubt; as an examination of the herd to-day will show that but few cows are contained therein that could not be sent to any man as the foundation stock of a Jersey herd.

Every animal sold is guaranteed to be exactly as represented, and has very universally given satisfaction. Much has been said and written of these little Jersey beauties of late years, and they are gaining for themselves an enviable reputation for their worth, making it against the prejudices of the people by proving themselves the best farmers' cows for milk, cream and butter.

In some future number we may have more to say of this herd.

TO CONTRIBUTORS.

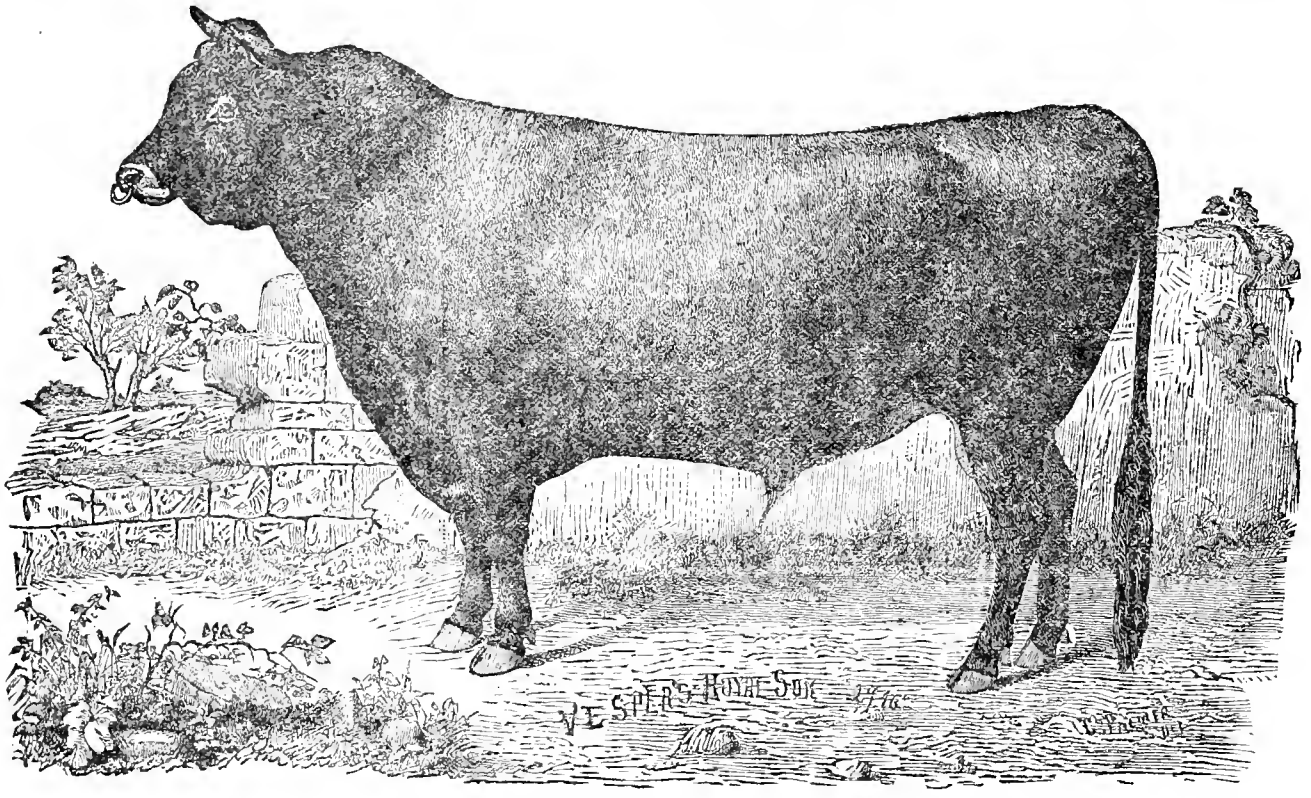
Two or three very interesting contributions came to hand after our quantum of matter for the present number of THE FARMER had already been made, we are therefore compelled to defer their publication to our July number. And here we would respectfully admonish our literary friends that any matter intended for our current number, should be in our hands by the first of the month, as a general thing. Circumstances may sometimes so conspire as to relieve the absoluteness of this as a rule, but this does not waive it as a general proposition.

CONTRIBUTIONS.

For THE LANCASTER FARMER.

LAND WEARING OUT.

Will our Lancaster county farms wear out by strong cultivation? is a question that often suggests itself to the thoughtful mind. Much has also been *said* and written on the subject. Our county in itself is claimed to be one of the richest in the State—with a rich limestone soil, joining with a gravel and sandy soil, and easily improved—geographically, favorably located—with railroad facilities unsurpassed by any other county in the State; the southeastern portion having a line of railroad *via* West Chester, Oxford and Peach Bottom, from Philadelphia to Baltimore; one along the shore of the Susquehanna from Columbia to Port Deposit; one through the centre of the county from Quarryville to Reading; one from Columbia northward through Reading to New York; one from Philadelphia through Lancaster to Pittsburg, and one along the river from Columbia to Middletown and Harrisburg; also branch roads running eastward from Strasburg to near Leaman Place, and from New Holland to Waynesburg. Its claim to riches is based upon the *fact* that it produces more wheat, corn and tobacco than any other county in the State, its tobacco crop of 1879 alone amounting in round numbers to $3,000,000, and the statistical numerations, now in progress, will more than bear us out in these estimates. Although we are likely, hereafter, to increase our wheat, corn and tobacco crops, yet our oat crop seems to be on the decrease, only yielding *one* good average crop in *seven*. But are we not at the same time impoverishing the soil? One-half of the land we heretofore put in oats we now put in tobacco. The accumulated manure pile is hauled out on the tobacco land in April. How wonderfully shrewd the tobacco culture is making us. Manure will go twice as far when applied in April as it will in August, and is much stronger, producing a good crop of tobacco, and also two good crops of wheat the following seasons. Most of our corn is fed into our cattle, and a great deal was brought from the West for the last three or four years for the same purpose, at prices ranging from fifty to sixty cents per bushel. We may eventually decrease our corn cultivation and depend on buying it, thereby keeping our lands more in clover, which is in itself a capital fertilizer. There are now more cattle fed in Lancaster county than ever before. Several hundred were sent weekly from Lititz to Pottsville and Philadelphia the present season. Farmers generally received from $1.00 to $1 50 advance on a hundred weight, which fully compensated them for the 50 or 60 cents they paid per bushel for corn, and in addition to this had also rich heaps of manure in the spring. Besides we have ample facilities to transport lime and the different fertilizers to every railroad station in the county, and manure can even be brought to the southern, northern or middle parts of the country from Baltimore and Philadelphia. In the northern part it was actually shipped from Reading and New York, over the Columbia and Reading Railroad. "Dairy manure," as it was called, was delivered at the Rothsville and Millway stations from Reading for less than $2.00 per ton. A great deal was delivered at Litiz direct from New York city for $5.00 per ton. It was horse manure, and was probably kept under shelter and was not so heavy as the Reading manure. It is evident then that we can increase our most valuable crops and improve our lands all the time. So, instead of impoverishing our lands by tobacco-raising and depreciating them in value, we are actually constantly improving them, and the prospect is that our land will advance from $10.00 to $30.00 per acre this coming fall, as we are almost surrounded by cities and towns with a market for our small fruit,



Sire, Imported IRON BANK, 1120. Dam, Imported VESPER, 1395.

Imported VESPER, 1395, is a fourteen pound butter cow, and Imported BIRDIE, 2611, the Dam of Imported IRON BANK, 1120, will make the same amount without injurious forcing.

and everything we can produce, so that we occupy one of the largest market gardens in the State and may be progressive people after all.

The anxieties entertained by some people about "wearing out" our lands are mainly groundless when considered in connection with our facilities to recuperate them. The Chinese have been cultivating rice and a multitude of other vegetable products, century after century, for four thousand years, and their lands are not yet worn out. They pursue a rigid system of recuperation which it would be well for those in this country, who possess such lands, to imitate. It is true that unforseen contingencies may occur, such as drought, through which calamities may follow, but the great famine in China was not the effect of a failure of her staple crops so much as it was from the want of means of transportation. Our country, like China, is vast and diversified in domain, but one advantage is that ours is becoming a gigantic network of railroads, which enables us to anticipate adverse contingencies, while in China one district may be famishing and another luxuriating, without their condition being known to each other or being able to help each other.—*Warwick, June*, 1880.

For The Lancaster Farmer

LETTER FROM NORTH CAROLINA.

Salisbury, N. C., June 1, 1880.

Editor Lancaster Farmer: The wheat crop, generally, looks promising, and bids fair to turn out well, more than was expected some weeks since; some will be ready to harvest this week. We had dry weather here the latter part of April and first three weeks in May; within the last ten days we had heavy rains, and a fine season for all vegetable matter. Oats is doing well, and will make a good crop. Grasses are good. Corn and cotton looks well. Some farmers have planted tobacco.

Garden truck, such as cabbage, lettuce, radishes, onions, peas, beets and Irish potatoes have been on tables of good housewives for more than a fortnight past, all grown in the open air. Squashes, cucumbers and tomatoes are growing finely and in bloom, and will be ready for use in a short time if the season proves good. Apples and peaches will be short in some localities, while in others the trees are heavily laden, so much so that the limbs will have to be propped up to keep the trees from breaking down. Pears will be scarce. Damsons, gages, prunes and plums will not be very plentiful. Grapes will be a heavy crop. I speak of all crops above named in this county (Rowan,) and so far as I have seen and heard.

More fertilizers have been sold here this season than were ever sold here before in any one season. Some kinds are applied to cotton; others for tobacco; some to wheat. Many farmers use it, while a great number of planters have no faith in it, and do not use it for any crop.—*M. R.*

For The Lancaster Farmer.

THE PLOW.

Has the plow been much improved in fifty years? In 1828 I saw some plows still lying about with wooden mould-boards, and with a coulter and plowshare of the simplest structure. The coulter was fastened below to the point of the plowshare, running up through the beam of the plow. It was not many years before that time that the cast-iron mould-board was invented. *That* was an improvement on the old Adams and all other kinds of plows. On several occasions I helped to take home plows from "Lampeter Square," (as the place was then called,) from a plowmaker by the name of Shultz. He was a small man, as I recollect him, but he made an excellent plow. We called it the "Shultz plow." It was rather low from top of beam to bottom of plowshare. The mould-board was rather longer than they were made at that time generally, and also longer than they are made at this time, but it was one of the plows to thoroughly turn the soil, or any ground, *upside down;* you could turn every particle of manure under ground. You could score, easy, one-half more than you could by any of the plows put out as the latest improvements, for *they* were not as good as the Shultz plow of fifty years ago. Shultz moved to the west many years ago. Then followed the Spielman, Minich, Root, Bupp, Wallace, and many other plows within my recollection, and some that I cannot recall. The Pittsburg plow was at one time highly extolled, but was finally laid away as old iron, among many others of the so-called improvements on the Spielman. Shultz and Root plows, which had been nothing but earth-scrapers; many of them rotted in fence corners, and some were stored away in old sheds as relics of the past. I believe some of Shultz's old neighbors will bear me out that his was as good a plow, if not better, than most plows since claimed as improvements. I would like to have the opinion of D. Herr, of Pequea, who was somewhat of a machinist in his time, or Hon. John Strohm, who certainly must recollect the Shultz plow as a good one. Well, with all the inventions in plows it is still only a plow, and nothing else but a plow. It is but an implement to overturn the soil, and so much the better if it can be made easy, with a light draft, as we have many two-horse farmers, and are getting more every year, so that *any* improvement in that direction would be very desirable. I followed the plow for many years, and conceited that if a plow *could* be made to work well at all, I could regulate it to work as well as any other man. The Wallace plow was so much used and talked about, and had been brought so conspicuously before the public, and advertised through lawsuits and collections of royalty, just as if it had been the *first* improved plow; yet it was only an ordinary affair—not any better than the Shultz after all.

A plow factory and foundry has been started in Warwick, Lancaster county, that manufactures a new plow which is of easy draft, and has a cutter in front of the mould-board. It turns the sod down as nice as the old Shultz plow did, and it runs itself at a regular depth without any one holding it, turning the ground smoothly *upside down*. It seems to have an easy draft, and is one of the best plows that have been recently introduced. It was only in lightness of draft that the plow has been improved during the last fifty years, but it is still a plow, and very probably will remain so for many years to come; notwithstanding, it is far behind any other implement used in agricultural labor. Steam plows embrace no new principle, so far as turning the soil is concerned; it is only the application of an old motive power, whereby the number of furrows can be increased—an aggregation of old plows pushed or pulled by steam. But they are too expensive for small farming, and too impracticable for hilly lands.—*Old Plowboy.*

For The Lancaster Farmer.

STILL HARPING ON THE MOON.

Editor Farmer: I observe in the May number of your journal that my last year's sarcastic critic, "A Seeker After Truth," who gives us plainly to understand that *he*, at least, is no "self-opinionated wiseacre," would like to renew the discussion in regard to the alleged influence of the moon's changing signs on the weather, the growth of crops, &c. He asks if "our amateur farmer" has "made no new discoveries on his eight by ten farm?"

Now, in The Farmer for September, 1879, I answered pretty fully, and in my own opinion conclusively, the various statements and arguments which had been adduced by our "Seeker after Truth" in support of the sign theory; and as in the nine months that have since elapsed, with the columns of your journal all the time open to him, he has made no attempt to dispute or controvert the facts there set forth, or the inferences drawn from them, it seems hardly necessary to call upon me for any "new discoveries" on the subject. If he wants exercise for his controversial talent and inclination let him go back and try his hand on the September article referred to.

As respects his late visit to see the floral treasures of "a lady who is a firm believer" in "stellar influences" and who attributes the freedom of her plants from insect pests to the simple fact that she transplants or shifts her plants "during certain signs or positions of the moon in the zodiac," no particular remarks are necessary, especially as we are left in ignorance not only of the name and residence of the the lady, but even what those "signs or positions of the moon in the zodiac" are that we are asked to believe have such a potential effect on the animal as well as the vegetable kingdom. The lady, we are told, "never smokes with tobacco to kill the aphids, nor evaporates sulphur to destroy the red spiders," &c.—her exemption being entirely owing to her care to transplant in the right sign. What appears strange in this account is that your correspondent does not inform us what the sign *is* that is so powerful and wonderful, in order that all your readers might hasten to avail themselves of the advantages to be therefrom derived. To be sure "Seeker" says the lady was not at home, but then it seems the rest of the family were, and as her husband and daughter were able to furnish the information contained in his article, one would think they might have told him the most important point of all.

If I am not mistaken, "Seeker" referred to this same lady and the wonderful freedom of her plants from insect pests in one of his communications in The Farmer, nearly or quite a year ago. I recollect he then stated that the lady attributed her exemption entirely to the fact that she always transplanted when the moon was in the sign Libra. Yet, notwithstanding his possession of this knowledge of an all-sufficient and infallible preventive, what do we find? In his last communication to The Farmer he says he keeps a few pot plants and his "greatest bother is with insect pests. I use tobacco smoke for aphids, for plant lice—evaporate sulphur occasionally to destroy red spiders—hand-pick the mealy bugs." Alas, alas! when will a stiff-necked generation of scientific unbelievers in the potency of the moon's signs be convinced of the error of their skepticism, when they thus see the chief prophet and apostle in modern times of "Stellar Influences" forgetting to depend upon the right sign of the moon for protection against noxious insects, and falling back on such vulgar expedients as tobacco smoke, sulphur, and "hand-picking the mealy bugs. "Seeker" adds that "thousands of persons still plant their root crops when the sign is down, and kill their pork and beef in the increase of the moon," and asks if this belief is "moonshine or superstition," confessing he is at a loss to know. In view of what I believe is the fact that except himself no close student of nature or scientific agriculturist in Europe or America for the last fifty years has found reason for retaining the smallest belief in the efficacy of the "signs," &c., and of the further fact that "Seeker" himself abandons the attempt to sustain the theory by any new or substantial facts or reasons, I think that in the course of another generation it will be acknowledged by all that his question must receive an affirmative answer, viz: "It *is* merely moonshine or superstition."—*Amateur Farmer.*

SELECTIONS.

THE HYGIENE OF THE EYES.

The following hygienic rules are compiled and condensed from eminent French and English authorities. For the worker the light should come as much as possible from the left side, that is to say, from the side toward which one turns in working. Daylight is the best; but direct sunlight and that reflected from mirrors should be avoided. The aspect should be northern and the light should come a little from above. White walls

should be avoided; highly varnished tables, and in workshops shining articles like silk should be protected from the sun's rays. Artificial light is always bad on account of the heat and exhalation of carbonic acid. The best is that of lamps fed with vegetable oil (much used in France, but seldom in this country) and furnished with a glass shade. Gas is bad because of its heat, brilliancy and mobility; the light of mineral oils is too hot, that of candles insufficient and flickering. The eye of the workman should avoid the light coming to him directly or diffused through the room. Working immediately after meals is objectionable; also, uninterrupted use of the eyes for long periods of time. One should write on an inclined plane, and not keep the head bent down more than is absolutely necessary. Reading in bed is bad every way. Some good authorities commend washing the eyes with cold water, but the majority of the best ophthalmologists advised the use of hot water for the less serious affections of the eye. For tired eyes, we believe, from our own experience, that water, hot as can be borne, is refreshing and beneficial. If the eyes are fatigued by artificial illumination blue or slightly smoked glasses will be useful, and to avoid the lateral rays they should be large and round. If the irritation of the eyes persists all work must be abandoned, and an examination made to see if there be any disturbance of refraction, of power, of accommodation or of the mobility of the eyes. Presbyopia, or so-called "far-sightedness," supervenes earlier with those who are constantly at work than with other individuals, and as soon as it does convex glasses should be at once resorted to, without which the muscle of accommodation would be fatigued to no purpose. At first they should be used for working in the evening after the fatigue of the day; but a long-sighted person should only use spectacles for looking at near objects, not at far ones. Work requiring close application favors the development of myopia, or "near-sightedness," precisely in proportion as the conditions of illuminations are bad. If the action of those causes continues the myopia will increase until vision is lost. A slight degree of myopia may be favorable to close work, but, as a general rule, work requiring close application, by the derangement of circulation that it inevitably induces in the eye, is much more injurious to the myopic, and is the great cause of the development of myopia and its complications. Young people should be examined, and if they are myopic, hindred from undertaking tedious studies and all professions demanding close application of the eye.

OUR HOME CROPS.

Secretary Thomas J. Edge, of the State Board of Agriculture, has sent us an advance copy of the quarterly report on the condition of the crops in this county, which we give below. The report is founded on the special reports furnished by those selected for this special duty. The average so far seems high, and unless we have rains speedily will not be long maintained.

CONDITION OF CROPS NAMED—COMPARED WITH LAST YEAR.

Wheat,	115
Rye,	115
Wheat stubble (grass,)	102
Mowing fields (clover,)	100
Mowing fields (timothy,)	100
Pasture (natural,)	102

COMPARED WITH AVERAGE OF FIVE YEARS.

Wheat,	115
Rye,	115
Wheat stubble (grass,)	94
Mowing fields (clover,)	93
Mowing fields (timothy,)	100
Pasture (natural,)	100

CONDITION OF FARM STOCK COMPARED WITH LAST YEAR.

Horses,	107	Sheep,	110
Mules,	107	Swine,	102
Oxen,	107	Fat cattle,	100
Cows,	110		

CONDITION OF FARM STOCK COMPARED WITH AVERAGE OF FIVE YEARS.

Horses,	105	Sheep,	105
Mules,	105	Swine,	107
Oxen,	107	Fat cattle,	115
Cows,	105		

PRICES OF FARM PRODUCTS AND STOCK IN NEAREST MARKET.

Wheat, per bushel,	$ 1.25
Rye, per bushel,	.75
Oats, per bushel,	.44
Corn, per bushel,	.54
Clover seed, per bushel,	5.25
Timothy seed, per bushel,	3.00
Potatoes, per bushel,	.50
Tobacco, per pound,	.19
Hay, per ton,	14.00
Butter, per pound,	.30
Milk, per quart,	.06
Ewes—fat, per head,	4.50
Lambs, per head,	4.00
Horses, average,	115.00
Mules, average,	118.00
Cows, average,	37.00

FARM WAGES AND BOARD.

By the month (whole year) with board	$11.50
By the month (summer months) with board	14.20
By the day (with board,) regular work,	.65
By the day (without board,) regular work,	.90
By the month (whole year,) without board,	18.50
By the month (summer months,) without board,	22.25
Estimated cost of board per day,	.28
Household help—female, by the week with board,	1.75

ACREAGE OF CROPS COMPARED WITH LAST YEAR.

Wheat,	95	Oats,	105
Corn,	94	Rye,	100

ACREAGE COMPARED WITH THE AVERAGE OF LAST FIVE YEARS.

Wheat,	104	Oats,	105
Corn,	100	Rye,	100

ESTIMATED COST OF THE FOLLOWING CROPS AND STOCKS:

Wheat, per bushel,	$ 1.02
Corn, per bushel,	.31
Rye, per bushel,	.87
Oats, per bushel,	.27
Potatoes, per bushel,	.20
Hay, per ton,	8.00
Clover seed, per bushel,	4.75
Timothy seed, per bushel,	2.50
Butter, per pound,	.20
Calves, 1 year old,	20.00
Calves, 2 years old,	33.00
Cows and steers, 3 years old,	40.00
Horses, 3 years old,	75.00

SUGAR vs. CORN

Letter from Victor E. Piollet.

Worthy Grange Master Piollet writes the following to the editor of the *Farmers' Friend:*

Your recent communication invites a word from me as to the cost of a sugar mill and evaporating pans, with a view to a trial of sugar-making, I suppose. The entire cost is less than one hundred dollars for a mill and fixtures capable of working up say thirty acres of amber cane within the season.

Wysauking grange will enter upon a trial this season—different members planting an acre of the cornfield with the Minnesota amber cane, purchased by the commissioner of the agricultural department to such as desire to make trial of sugar-making.

We poor farmers are all working for dear life to produce corn which we will have to sell in our export markets for less than 60 cents a bushel, after paying one-fourth of this sum for transportation. Every bushel of corn that farmers will produce this season will take from the soil in potash, nitrogen and phosphorus twenty per cent. of this export market price. There is no home market for our corn. The only value there is attainable is the foreign demand. With this well-known fact we stick to the old rut and make corn year after year at the sacrifice of capital and labor.

While twenty per cent. of the market value of our corn will be required to make our fields as good after the crop has been taken from them as before planting, we persist in producing corn to the exclusion of a system of farming that would pay us very much better. This country pays over one hundred million dollars annually to foreign countries for sugar. While the production of corn takes from the soil in nitrogen, phosphorus and potash twenty per cent. of its market value, there is no perceptible trace of either nitrogen, phosphorus or potash in sugar.

This fact ought to influence our farmers. The entire value of the corn we market does not amount to as much as we pay out for sugar, and we can make sugar enough for home consumption at a far less cost than any production of our farms that we must dispose of to get money to pay for the sugar we purchase.

The corn fields of Pennsylvania that will produce forty bushels per acre will produce enough of the Minnesota amber cane to make one thousand five hundred pounds of sugar that refiners would purchase as readily as they do the foreign sugar.

Amber cane can be produced at the same cost that our corn can be raised. It will mature in from ninety to one hundred days, and will cost in our labor about three cents per pound to make.

This is not speculation. Our worthy commissioner of agriculture, Gen. Le Duc, has tested the whole process of sugar-making by actual practical methods.

France, at no very distant period of time, was dependent upon foreign countries for her supply of sugar, now not only supplies her own country with the annual consumption of sugar, but makes one-fourth of all the sugar production in this world.

France makes sugar from beets: Did she have our soil and climate in which to grow all the varieties of cane that is natural to our our country, that country would make sugar as we can.—*Your friend, V. E. Piollet, Wysox, May* 10, 1880.

A HOUSEHOLD PEST.

The great matter in storing away winter clothing for the summer months is to do so in good season before the moth, which will corrupt their goodliness, has had time or opportunity to lay her eggs upon them. If this is done, and the chest in which they are packed is air-tight and lined with newspapers—camphor or other drugs are needless—the garments are safe for months or years, as may be. This spring, however, such prudence has been impossible—the phenomenal weather which has called for a fan on one day and for furs on the next has rendered it necessary to cling to our flannels and overcoats to the very last, lest the penalty for shedding them be paid in neuralgia and catarrh.

Therefore, in packing them double care is necessary, lest when the chests are opened it may be found that the moth's eggs have been laid away to hatch; that the costly furs are shorn of their beauty, and that cashmeres and cloths are riddled by the destructive borers. Airing garments, as it is usually done, is often productive of much mischief, since to hang them in the shade or to leave them out in the cool of the evening is merely to expose them to the moth-miller. The hot sun at midday and a good stiff breeze are alike beneficial, as the first purifies the garment for any mustiness of smell and the wind blows out dust and gives it a good shaking. A good beating in the open air is, however, the best of all preparation for packing away. Furriers use small rods, with which they whip their furs well, but a thorough whisk-brushing will answer every purpose. If the hairs are matted in any spot, or if there be any appearance of moth, wet the suspected spot with hartshorn (spirits of ammonia). Then sprinkle with camphor and fold in newspapers, so that a layer of newspapers covers every part of the fur, with a secure outer wrapper of the same.

The practice of sending costly furs to the furriers for storage is every year gaining ground, and is undoubtedly the best and safest mode of preserving them. Such firms, for a moderate percentage on the cost of the furs, assume all risk from moth, fire or thieves, and guarantee their return in good condition. This insurance is an especial inducement to people going out of town for the summer, and it is becoming as customary to send valu-

able furs and India shawls to the dealers for safe keeping as to deposit silver plate at bank. Air-tight, cedar-lined closets, or cedar or camphor wood chests are used for packing at such houses, and the garments are carefully examined before packing. Should traces of moth be discovered the garments are either rejected or accepted at the owner's risk of moth. In the latter case they are beaten, folded in cotton cloth and encased in tar paper, and then laid away separately in sealed pasteboard boxes, when the danger from moths becomes almost nil.

Very few people can afford to indulge in the luxury of a cedar closet at home. Next in point of safety and expense come camphor wood and cedar chests, both of which, as is well known, are moth-proof. Of late years ordinary packing trunks lined with cedar have come into great favor. These are comparatively inexpensive and a moderate sized one may be had for five dollars. Line it with a large cotton, or, better still, a linen sheet, and pack the garments, sprinkling cedar chips, which may be bought at a turner's or wooden ware factory, between them, cover with the ends of the sheet, lock the trunk, and no anxiety need be felt for any of its contents.

Another and still cheaper moth-proof case is the barrel made of thin wood or paper-ware and lined with tar paper. To these the only objection is the odor, which is unfortunately as unpleasant as it is healthy. Goods packed in them are, however, perfectly safe, and a good airing when unpacked is sufficient to remove the smell of tar. The barrels have close-fitting heads and are practically air-tight.

While all these packing cases are convenient they are not necessary. An ordinary packing trunk or wooden chest can be made by care to answer every purpose. Beat and brush the garments thoroughly, line the trunk with newspapers in two thicknesses and pack, sprinkling gum camphor between the folds. Cover each layer of garments with newspapers and spread paper over the top one, turning down the ends of those which line the trunk and tuck the ends in carefully, so that every thread of the goods will be covered. With white woolens or delicate shades of cashmere or silk it is wiser to wrap the pieces of camphor in white paper, else the gum may injure the color of the fabric. Blankets which are soiled should be washed before packing, and no flannels or merino garments should ever be put away dirty. Besides the comfort of having them clean when wanted, moths are much more likely to attack soiled garments than clean ones. Dresses which are to be dyed or cleaned and made over should be ripped apart and brushed. It is wisest to defer dyeing them until the new shades of the fall and winter appear, but they are easier to pack if ripped apart and are saved from the wear in the fold, to which a dress always is more or less subject when laid away.

A moth preventive, much used by dealers in furs and woolens, is the tar paper of which we have already spoken. This is treated with carbolic acid as well as with tar, and it is literally moth proof; the miller will never attempt to crawl over or under it. When a case is lined with it a second lining of newspapers should be added, and a large sheet put in so as to be drawn afterward over all the contents, for the tar rubs off badly and will soil the goods if it comes into contact with them. Camphor may be sprinkled between the woolens if it is possible that the moth has already had access to them; otherwise it is unnecessary. After folding the ends of newspapers and sheet over the contents of the chest put on an outer cover of tar paper, and you may close the chest in perfect assurance of the safety of your goods.

When a closet is to be used for packing let it be well scoured on shelves and floor and the walls brushed or whitewashed. Furs and woolens may then be enclosed in sealed newspaper bags, or in pasteboard boxes with a strip of paper pasted over the cracks, and laid on the shelves. Carpets can be wrapped in newspapers and laid in such a closet with almost complete safety. Printers' ink is an excellent moth preventive and destroyer, and many excellent housewives rely entirely upon it in packing away winter clothing.

Taking up carpets for the dog-days renders the house cooler and saves three months' wear of them. If the family are going away for the summer the carpets may be covered with crash on the floor as a double protection from moth and dust. If, when taken up, there is even a suspicion of moths, send them at once to the steam cleaner, whose process destroys all moth eggs and larvæ in the carpet. Otherwise roll them up in the dust with newspapers laid between the folds, and stow them in a clean closet, the door of which fits tight.

Curtains may be freshened by sprinkling wheat bran between the folds, but, as this offers inducements to mice, the box in which they are packed should be carefully secured against the access of such small deer.

Fire irons, knives, etc., which are not to be used during the summer, should be oiled and laid away in the thick wrapping paper used by hardware men, the great idea being to keep too dry to rust.—*Philadelphia Times.*

THE FRUIT TRADE.

That the popular appetite increases for oranges, pine apples, bananas, cocoanuts, etc., can be easily proved by any one who chooses to walk along the wharves from Vine street to Walnut. The fruit trade has increased in this city so rapidly during the past few years that those who are engaged in it are really astounded at the results. The only line of steamships engaged exclusively in this trade carrying the American flag run into this port. They are the property of Warner & Merritt, Nos. 50, 52 and 54 North wharves.

The D. J. Foley, a comparatively new steamer, the third of the steamship line, sailed last week for Jamaica. She is 541 tons burthen, 179 feet in length, 30 feet breadth of beam, and 18 feet depth of hold. She is commanded by Captain Dickman, who, as second mate of the Metropolitan, lost off the North Carolina coast, saved so many lives. The vessel is so arranged that it will bring out a cargo of 16,000 bundles of bananas, 200,000 cocoanuts and 400,000 oranges. She will return to the port in about seventeen days. In answer to some questions by a reporter of the *Star*, Mr. Merritt, a member of the firm, said: "You have no idea how large our fruit trade has become. We are now the largest importers in this country, without a doubt. We bring here two or three times more fruit than the largest New York importers. They claim differently, but they are afraid to show their books—ours are always open. We have 223 of the fastest schooners and three steamships in the trade, and by next fall we will have doubled our steamships and have them of greater tonnage than the ones we now have. One of our schooners, the Ethel May Merritt, has arrived at Jamaica, only six days from this port, which is the fastest time on record—for sailing vessels—and very few steamships could beat it. We are required to have fast vessels, because the cargo is so perishable, and plenty of them, for the demand for fruit is so great that a vessel's load remains in our hands but a few hours. Even now we have over $40,000 worth of perishable fruit afloat, and we have had at times over $60,000 worth in the holds of our vessels. We have to handle it quickly, so as to prevent losses. Our arrangements in the store are such that in such weather as this our lower floors are vast refrigerators, and in our vessels we have all kinds of appliances to keep the fruit in good order. Take bananas, for instance. They need the most careful handling, and placed in such positions that rotting is not easy. For remember that we buy the fruit in Jamaica, bring it here, and send it over all parts of the country. Ours is not an exclusive local trade. We ship to Virginia, North and South Carolina, Georgia, Alabama, Iowa, Tennessee, and all the far Western States, this delicious fruit. Our outside business is even greater than it is at home, and here we really supply the market. The thinnest bunches are sent to the farthest places, as they keep better in transit. In winter they are carefully packed in manilla paper and hay, and in summer in ventilated boxes. Our dealings in cocoanuts is a business in itself, and have increased enormously. We prepare them all ready for the confectioner. Croft, Wilbur & Co. alone take 1,000,000 nuts from us every year.

The rivalry in this fruit business between New York and Philadelphia has been at times very bitter, and is always animated. New York did not think we ever would become serious competitors with them, but we have shown them that we could and would beat them at their own games. Some time ago they sent agents to Jamaica and raised the price of fruit on us; when we heard of it we sent men to Aspinwall, their principal market, and raised the price on them. They cried halt first, coming out behind between $10,000 and $15,000, while we only lost $3,000. The price of fruit is now low, but when we get ships of greater tonnage it will be lower still. We have thought of going into competition for the carrying trade all around the West Indies, and so altering our vessels sailing from here that they can carry a greater number of passengers than they do now. We have found that it pays to own our vessels. It redounds to our profit and to the glory of the port of Philadelphia.—*Philadelphia Evening Star.*

FACTS AND OPINIONS.

Drinking water excessively in warm weather weakens and debilitates the system. Coffee taken when *thirst* first approaches will often allay it until the dinner or supper hour. Tea, vinegar and water, or lemonade, are excellent; ginger, molasses and vinegar, with water, is refreshing, as is also coffee, sweet milk or buttermilk. Frequently baths allay thirst. I often refresh myself in the heat of the day by bathing head, neck and arms in a cool spring brook—not by dousing the members suddenly, but by laying them with the moist hand first. During the heated term it is profitable to take longer noon rests, working more in the cool of the mornings and evenings.

Woolen shirts are the *best for farmers*, both in summer and winter. They absorb the perspiration, prevent chills and protect the person from sudden changes of temperature. The colors are permanent, and with wide turn-down collar of the same material, blue flannel makes an appropriate and tidy garment.

Waste leather from shoe manufactories is ground, mixed with glue and pressed into various forms required in articles where sole leather or other stiff stock should be employed, such as the stiffenings and soles of shoes, washers for wagon wheels, many parts of harness, etc. This *artificial leather* disintegrates on becoming wet, and in all instances is of but little value. When used in the manufacture of harness the fraud may be discovered by careful examination, as it never becomes pliable and is remarkably coarse in the grain.

The horse is *an expensive animal to keep.* Three feeds of oats per day of four quarts each amounts to 137 bushels per year, worth say $48. I estimate the hay he will consume at $50 for the same time, shoeing $5, care $15 at the lowest, interest on his cost (say $150) $10.50, loss by wear, increased age and liability to accident and disease $7—giving $135.50 as the yearly cost of keeping one horse, from which I should deduct $10 as the value of the manure he could make. Many farm-horses are kept at half this expense, but even then the cost of keeping six will make a gap in the profits. Three good, prompt-stepping horses, well fed and cared for, will do the work of five that are aged, crippled and debilitated.—*Charles A. Greene, Monroe Co., N. Y.*

PREMIUM LIST.

OPEN TO ALL COUNTIES.

NO ARTICLE CAN COMPETE FOR MORE THAN ONE PREMIUM.

CLASS 1.—FRUITS.

APPLES.

Largest and best collection of fifty or more named varieties of apples, four specimens of each variety.

First premium.....$6.00
Second premium..... 4.00
Third premium..... 2.00

All fruits in the following list must be grown by the exhibitor:

Best plate or basket of Smokehouse..... .50
Best plate or basket of Rambo..... .50
Best plate or basket of York Imperial..... .50
Best plate or basket of Belleflowers..... .50
Best plate or basket of Gravenstein..... .50
Best plate or basket of Maiden's Blush..... .50
Best plate or basket of Northern Spy..... .50
Best plate or basket of King of Tompkins Co..... .50
Best plate or basket of Baldwin..... .50
Best plate or basket of Wine Sap..... .50
Best plate or basket of Smith's Cider..... .50
Best plate or basket of Fall Pippin..... .50
Best plate or basket of Fallowwater..... .50
Best plate or basket of Seek-no-Further..... .50
Best plate or basket of Vandevere..... .50
Best plate or basket of any other variety..... .50

Not less than five apples on each plate.

PEARS.

Largest and best collection of twenty-five or more named varieties of pears, four specimens of each.

First premium.....$6.00
Second premium..... 4.00
Third premium..... 2.00

All fruit in the following list must be grown by the exhibitor:

Best plate or basket of Bartlett..... .50
Best plate or basket of Seckel..... .50
Best plate or basket of Duchess d'Angouleme..... .50
Best plate or basket of Louise Bonne de Jersey..... .50
Best plate or basket of Beurre d'Anjou..... .50
Best plate or basket of Flemish Beauty..... .50
Best plate or basket of Urbanista..... .50
Best plate or basket of Lawrence..... .50
Best plate or basket of Sheldon..... .50
Best plate or basket of Belle Lucrative..... .50
Best plate or basket of any other variety..... .50

PEACHES.

Largest and best collection of twelve or more named varieties, four specimens of each.

First premium.....$4.00
Second premium..... 2.00
Third premium..... 1.00

Best plate or basket of any single variety..... .50
Best new seedling not before exhibited.....$1.00

Not less than six specimens in a plate.

PLUMS.

Largest and best collection of ten or more named varieties, ten specimens each.

First premium.....$4.00
Second premium..... 2.00
Third premium..... 1.00

Best plate of any single variety..... .50

QUINCES.

Best half-peck or more.....$1.00
Second best half-peck or more..... .50
Best plate (four specimens)..... .50

GRAPES.

Largest and best collection of twenty or more named varieties, four bunches each.

First premium.....$6.00
Second premium..... 4.00
Third premium..... 2.00

Best four bunches Agawam..... .50
Best four bunches Concord..... .50
Best four bunches Isabella..... .50
Best four bunches Catawba..... .50
Best four bunches Wilder..... .50
Best four bunches Merrimac..... .50
Best four bunches Diana..... .50
Best four bunches Martha..... .50
Best four bunches Telegraph..... .50
Best four bunches Brighton..... .50
Best four bunches Lady..... .50
Best four bunches any other variety..... .50
Largest and best collection of foreign grapes, five or more varieties..... 2.00

MISCELLANEOUS.

For the most tastefully arranged basket of fruits of all kinds.$2.00
Second best most tastefully arranged basket of fruits of all kinds..... 1.00
Best Oranges, grown by exhibitor..... .50
Best Lemons, grown by exhibitor..... .50
Best Orange tree..... 2.00
Best Lemon tree..... 1.00

MELONS.

The largest and best collection of melons, not less than ten named varieties and three specimens of each.....$2.00
The best three Watermelons..... .50
The best three Citronmelons..... .50
The best three Muskmelons..... .50
The best three Cantaloupes..... .50
The best three any other single variety..... .50

CLASS 2.—FLOWERS.

PLANTS IN POTS.

Best collection of twenty-five or more named varieties, at least one-half to be in bloom.....$5.00
Second best, at least one-half to be in bloom..... 3.00
Third best, at least one-half to be in bloom..... 1.00
Best collection of ornamental foliaged plants, not less than ten named varieties..... 3.00
Second best, not less than ten varieties..... 2.00
Third best, not less than ten varieties..... 1 00
Best single ornamental plant..... .50
Best collection of six or more varieties of Ferns..... 2 00
Second best collection of six or more varieties of Ferns.... 1.00
Best single Fern..... .50
Best collection of six or more varieties of China Asters.... 1.00
Best collection of six or more varieties of Fuchias..... .50
Best collection of six or more varieties of Roses..... .50
Best collection of six or more varieties of Geraniums..... .50
Best collection of six or more varieties of Heliotropes..... .50
Best collection of six or more varieties of Verbenas..... .50
Best collection of six or more varieties of Dahlias..... .50
Best collection of any other kind of single variety..... .50
Best collection of cut Flowers..... 1.00
Second best collection of cut Flowers..... .50
Third best collection of cut Flowers..... .25
Best designed basket or bouquet of cut Flowers..... 1.50
Second best designed basket or bouquet of cut Flowers.... .75
Best rustic stand of Flowers..... .75
Best hanging basket of Flowers..... .75
Best hand bouquet..... 1.00
Second best hand bouquet..... .50
Best skeletonized bouquet..... .75
Best wreath of flowers..... 1.00
Second best wreath of flowers..... .50
Best collection of Cactus—six varieties..... 1.00
Best collection of Petunias—six varieties..... .50

CLASS 3.—VEGETABLES.

Largest and best collection of vegetables—not less than twenty named varieties—each duplicated by three.

First premium.....$4.00
Second premium..... 2.00
Third premium..... 1.00

Best peck Early Rose potato..... .50
Best peck Snowflake..... .50
Best peck Mercer..... .50
Best peck Peerless..... .50
Best peck White Peachblow..... .50
Best peck Early Ohio..... .50
Best peck Late Rose..... .50
Best peck Burbank..... .50
Best peck Victor..... .50
Best peck Seedling..... .50
Best peck Red Sweet Potato..... .50
Best Yellow Sweet Potato..... .50

Largest and best collection of potatoes, not less than ten varieties, six specimens each.
- First premium $2.00
- Second premium 1.00

Largest and best collection of cabbages, not less than six varieties, and two specimens each $1.00
Best head of Flat Dutch ..... .50
Best head of Red Cabbage ..... .50
Largest head of any kind ..... .50
Largest and best collection of Turnips, six varieties and four specimens each 1.00
The largest four specimens of Turnips ..... .25
The largest four specimens of Parsnips ..... .25
The largest four specimens of Carrots ..... .25
Largest and best collection of Beets, six varieties and four specimens each 1.00
The best four specimens of Turnip Beets ..... .25
The best four long Blood Beets ..... .25
The best four long White Beets ..... .25
The best and largest four Beets of any kind ..... .50
The best half-bushel Sugar Beets 2.00
The second half-bushel Sugar Beets 1.00
The best half-bushel Menglewurtze 1.00
The second best half-bushel Menglewurtzel ..... .50
The best half-bushel Rutabaga ..... .50
Best Red Onions, five specimens ..... .25
Best Yellow Onions, five specimens ..... .25
Largest Onions of any kind, five specimens ..... .25
Best Cushaw, two specimens ..... .50
Best Hubbard, two specimens ..... .50
Best Boston Marrow, two specimens ..... .50
Largest Pumpkin of any kind ..... .50
Largest collection of Pumpkins, Squashes and Cushaws 1.00
Best six Cucumbers ..... .25
Best six Eggplants, (vegetable eggs) ..... .50
Best collection of Tomatoes, five varieties, four specimens .. 1.00
Best five red Tomatoes ..... .25
Best five yellow Tomatoes ..... .25
Best collection of Peppers, four varieties and three specimens each ..... .50
Best single variety, five specimens ..... .25
Best three bunches Celery ..... .25
Best three bunches Parsley ..... .25
Best three bunches Endive ..... .25
Best three bunches Salsify ..... .25
Best collection of Radishes, five varieties, three specimens. .50
Best five China Rose ..... .25
Best five Black Spanish ..... .25
Best five White Summer ..... .25
Largest Radish of any kind ..... .25
Largest and best collection of Beans, not less than six varieties, one quart each ..... .50
Best half-peck of Lima Beans ..... .25
Best half-peck of Green Beans ..... .25
Best half-peek of Soup Beans ..... .25
Best half peck of Green Peas ..... .25
Best collection of Okra, ten specimens ..... .25

CLASS 4.—CEREALS.

The largest and best collection of Wheat, not less than five varieties, and one peck of each.
- First premium $6.00
- Second premium 4.00
- Third premium 2.00

Best peck of White Wheat ..... .75
Best peck of Red Wheat ..... .75
Best peck of Amber ..... .75
Best peck of Rye $1.00
Best peck of Black Oats ..... .50
Best peck of White Oats ..... .50
Best quart of Cloverseed ..... .50
Best quart of Timothy ..... .50

*Largest and best collection of Corn, not less than five varities.
- First premium $6.00
- Second premium 4.00
- Third premium 2.00

Best ten ears of Yellow Corn ..... .50
Best ten ears of White Corn ..... .50
Best ten ears of Sweet Corn ..... .50
Best ten ears of Pop-corn ..... .50

*If shelled, not less than one-half peck of each, but if in ears then ten ears each. When number and quantity is mentioned the *minimum* is meant; it may be greater but not less.

SPECIAL FIELD PREMIUMS.

For the largest and best yield of Wheat, from five acres, of the harvest of 1880 ..... $10.00
Second premium 5.00
Third premium 2.00
For the largest and best yield of corn from five acres, crop of 1880 ..... 10.00
Second premium 5.00
Third premium 2.00

All competitors for the above premiums will be required to pay an entry fee of two dollars, and submit a full statement of the kind of land on which the crop grew, the quantity and kind of fertilizers used, the time of sowing and the quantity of seed sown per acre, the acreage to be carefully measured by some disinterested party, and to be certified to by some magistrate authorized to administer oaths.

All entries for wheat must be made by the 1st of July, 1880, and those for corn by the 15th of September, 1880, and the entry fee paid to M. D. Kendig, Secretary, Creswell, Lancaster county, Pa.

CLASS 5.—DOMESTIC PRODUCTIONS.

Best two pounds of Butter $2.00
Second best Butter 1.00
Best loaf of home-made Bread 1.00
Second best loaf of home-made Bread ..... .50
Best dozen of Rusks ..... .25
Best dozen of Biscuits ..... .25
Best Fruit Cake ..... .50
Largest display of Cakes, twelve varieties 1.00
Largest display of Preserves, ten varieties 1.00
Best Peach Preserves ..... .50
Best Pear Preserves ..... .50
Best Tomato Preserves ..... .50
Best Strawberry Preserves ..... .50
Largest display of Jellies, eight varieties 1.00
Best Quince Jelly ..... .25
Best Crab Apple Jelly ..... .25
Best Currant Jelly ..... .25
Best Apple Jelly ..... .25
Best Peach Jelly ..... .25
Best crock of Apple Butter ..... .50
Best crock of Peach Butter ..... .50
Best crock of Quince Butter ..... .50
Largest display of Butters and Jams, eight varieties 1.00
Largest display of Pickles, eight varieties 1.00
Best mixed Pickles ..... .25
Best mixed Cucumber Pickles ..... .25
Largest display of home-made Soaps, not less than ten specimens 1.00
Best pound of Hard Soap ..... .25
Best two pounds Oleomargarine 1.00
Best loaf of Graham Bread 1 00
Largest, finest and best display of Canned Fruits, not less than ten varieties 2.00
Second best display of Canned Fruits 1.00
Best can or jar of Tomatoes ..... .25
Best can or jar of Peaches ..... .25
Best can or jar of Pears ..... .25
Best can or jar of Strawberries ..... .25
Best can or jar of Grapes ..... .25
Largest and best collection of home-made Wines in bottles, not less than six kinds 1.00
Best bottle of Grape Wine, any kind ..... .50
Best bottle of Cherry Wine ..... .50
Best bottle of Strawberry Wine ..... .50
Best bottle of Blackberry Wine ..... .50

CLASS 6.—APIARY.

Largest and best collection of Honey in the comb, not less than five specimens $1.00
Best pound of Honey in comb ..... .50
Best jar out of comb ..... .50
Best Hive 1.00

CLASS 7.—TOBACCO.

For the largest and best collection of Tobacco on the stalk, grown the present season, not less than four stalks of each variety $4.00

Second largest and best variety	2.50
Third largest and best variety	1.50
For six largest leaves of Tobacco of 1880	2.00
Second best largest leaves of Tobacco of 1880	1.00
For any meritorious collection of Tobacco	1.50

For any other exhibit of Tobacco, or anything relating to its culture, its preservation and its economical treatment, a discretionary award.

CLASS 8.—HOUSEHOLD MANUFACTURE.

	1ST PREM.	2D PREM.
Best display of Carpets	$2.00	$1.00
Best ten yards, or more, Woolen Carpet	1.00	.50
Best ten yards, or more, Rag Carpet	1.00	.50
Best ten yards, or more, home-made Flannel	1.00	.50
Best ten yards, or more, home-made Linen	1.00	.50
Best pair Woolen Blankets	2.00	1.00
Best suit of Men's Clothes	2.00	1.00
Best suit of Boys' Clothes	1.00	.50
Best Ladies' Dress	2.00	1.00
Best Child's Dress	1.00	.50
Best hand-made Shirt	1.00	
Best machine made Shirt	1.00	
Best Rag Rug	.50	
Best Yarn Rug	.50	
Best pair Woolen Stockings, hand-made	1.00	.50
Best pair Woolen Socks, home-made	1.00	.50
Best pair Cotton Stockings, hand-made	1.00	.50
Best pair Cotton Half-hose, hand-made	1.00	.50
Best pound of Stocking Yarn, hand-made	.50	
Neatest Darned Stockings	.50	
Best samples Plain Sewing, embracing the different stitches used in household sewing and repairing, which are tucking, hemming, felling, gathering, whipping, over and over seaming and stitching	1.00	.50

QUILTS.

Best Silk Quilt	2.00	1.00
Best Worsted Patch-work Quilt	2.00	1.00
Best Cotton Patchwork Quilt	2.00	1.00
Best Double Coverlet Quilt	2.00	1.00
Best Knitted Cotton Quilt	2.00	1.00
Best Crochet Spread	2.00	1.00

CLASS 9.—EMBROIDERY.

	1ST PREM.	2D PREM.
Best Silk Embroidered Shawl	$2.00	$1.00
Best Silk Embroidered Child's Skirt	2.00	1.00
Best Silk Embroidered Child's Dress	2.00	1.00
Best Embroidered Ladies' Sack	2.00	1.00
Best Embroidered Ladies' Skirt	2.00	1.00
Best Embroidered Ladies' Lambrequin	1.00	
Largest collection of Silk Embroidery	2.00	1.00
Largest collection of Worsted Embroidery	2.00	1.00
Best Raised Worsted Embroidered Chair	2.00	1.00
Best Raised Worsted Embroidered Sofa Pillow	2.00	1.00
Best Plain Worsted Embroidered Slippers	1.00	.50
Best Plain Worsted Embroidered Sofa Pillow	1.00	
Best Plain Worsted Embroidered Hassock	.50	
Best Plain Worsted Embroidered Lambrequins	.50	
Best Plain Worsted Embroidered Picture	1.00	.50
Best Plain Embroidered Tidy	1.00	.50
Best Plain Worsted Embroidered Rug	1.00	.50
Best Plain Worsted Embroidered Cushion	.50	
Best Bead and Worsted Embroidered Slippers	.50	
Best Bead and Worsted Embroidered Lambrequins	.50	
Best Worsted and Silk Embroidered Cushion	1.00	.50
Best Worsted and Silk Embroidered Chair	2.00	1.00
Best Worsted and Silk Embroidered Lambrequin	1.00	.50
Best Embroidered Towel Rack	.50	
Best Embroidered Scrap Bag	.50	
Best Embroidered Slipper Case	.50	

CLASS 10.—COTTON EMBROIDERY, LACES, BRAIDS, &C.

	1ST PREM.	2D PREM.
Best Cotton Embroidered Pillow Shams	$1.00	$ .50
Best Cotton Embroidered set Chemise, Night Dress and Drawers	1.00	.50
Best Braided Pillow and Sheet Shams	1.00	.50
Best Ladies Braided Sack	.50	
Best Fish Scale Embroidery	1.00	.50
Best Transfer Work	1.00	.50
Best Applique Work	1.00	.50
Best Pen Drawing with Indelible Fluid on Linen	1.00	.50
Best Java Canvass Toilet Set	.50	
Best Darned Net Tidy	1.00	.50
Best Modern Point Lace Handkerchief	1.00	.50
Best Point Guipure Lace Handkerchief	1.00	.50
Best Honiton Lace Handkerchief	1.00	.50
Best Guipure Lace, not less than one yard	1.00	.50
Best Guipure Lace Tie Ends	.50	
Best Honiton Lace, Barb	1.00	
Best Honiton Lace Tie Ends	.50	
Best Honiton Lace, not less than one yard	1.00	.50

Imported Laces are ruled out from competition.

CLASS 11.—CROCHET AND TATTING WORK, AFGHANS, &C.

	1ST PREM.	2D PREM
Best Carriage Afghan	$1.00	$ .50
Best Child's Carriage Afghan	1.00	.50
Best Crochet Shawl	.50	
Best Crochet Skirt	.50	
Best Crochet Tidy	.50	
Best Crochet Vest	.50	
Best Crochet Hood	.50	
Best Pair Crochet Lamp Mats	.50	
Best Pair Crochet Leggins	.50	
Best Infants' Crochet Sack	.50	
Best Infants' Crochet Socks, variety	.50	
Best Crochet Sleeveless Jacket	.50	
Best three yards Crochet Edging, with Braid	.50	
Best three yards Crochet Inserting, with Braid	.50	
Best three yards Tatting Edging	.50	
Best Tatting Tidy	1.00	
Best Netted Seins	1.00	.50
Best Netted Horse Nets	1.00	.50
Largest and best display of Millinery Work	2.00	1.00
Largest and best display of Dress Goods	2.00	1.00

Committees are instructed to award premiums to articles made by the exhibitor.

CLASS 12.—FANCY GOODS AND FURS.

	1ST PREM.	2D PREM.
Best Ornamental Shell Work	$1.00	$ .50
Best Ornamental Hair Work	1.00	.50
Best Shell Flowers	1.00	.50
Best Ornamental Wax Flowers	1.00	.50
Best Wax Fruit	1.00	.50
Best Work in Autumn Leaves	.50	
Best Fern Work	.50	
Best Coral Work	1.00	.50
Best Decalcemanie Work	1.00	.50
Best Spatter Work	1.00	.50
Best Moss Work	1.00	.50

Committees are instructed to award premiums to articles made by the exhibitor.

CLASS 13.—CABINET-WARE.

Best set Parlor Furniture, not less than seven pieces	$3.00
Second best set Parlor Furniture, not less than seven pieces	1.00
Best Lounge or Couch	1.00
Best Upholstered Reception Chairs	1.00
Best Library Table	1.00
Best Window Cornice	1.00
Best set Chamber Furniture, not less than four pieces	2.00
Second best set Chamber Furniture, not less than four pieces	1.00
Best Spring Mattress	1.00
Best Dining Room Chairs	1.00
Best Extension Table	1.00
Best Sideboard	1.00
Best Book Case	1.00
Best Office Table	1.00
Best Office Chair	1.00
Best Office Desk	$1.00
Best Hat Rack	1.00
Best Child's Crib	1.00
Best Child's Carriage	1.00
Best display of Willow or Rattan Furniture	2.00
Best display of Rustic Wood Work	2.00

CLASS 14.—SADDLERY.

Best Double Carriage Harness	$2.00
Best Single Carriage Harness	1.00

Best Gent's Saddle	1.00
Best Ladies' Saddle	1.00
Best Riding Bridle	1.00
Best display of Saddlers' Work	2.00
Second best display of Saddlers' Work	1.00
Best display of Leather, all kinds	2.00
Best display of India Rubber Goods	1.00
Best display of Horse Blankets	1.00
Best display of Whips	1.00

CLASS 15.—MISCELLANEOUS.

Best display of Iron Work	$2.00
Best display of Edge Tools	2.00
Best display of Cutlery	2.00
Best display of Chinaware	2.00
Best display of Glassware	2.00
Best display of Groceries	2.00
Best display of Confectionery	2.00
Best display of Jewelry and Silverware	2.00
Best display of Photograph Work	2.00
Best display of Druggist's Stock	2.00
Best display of Dry Goods	2.00
Best display of Hats and Caps	2.00
Best display of Boots and Shoes	2.00
Best display of Earthenware	2.00
Best display of Willowware	2.00
Best display of Brooms and Brushes	2.00
Best display of Geological Specimens	2.00
Best display of Old Coins	2.00
Best display of Old Relics	2.00
Best display of Fancy Articles	2.00
Best display of Light Farm Implements	3.00
Best display of Dairy Implements	3.00

MUSICAL INTRUMENTS, SEWING MACHINES, NEW INVENTIONS AND NON-ENUMERATED ARTICLES.

Under this General Head the Managers invite the exhibition of Pianos, Musical Instruments and Sewing Machines, without competition for premiums.

For Models of New Inventions, and for all articles of ingenuity, usefulness and merit, which may be exhibited, and which are not provided for in the foregoing list of premiums, discretionary awards in money or certificates of merit will be awarded.

All exhibitors will be required to take charge of their articles at 10 o'clock P. M., on Friday evening, October 1st, at the close of the Fair, and have all removed by six o'clock on Saturday morning.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The Lancaster County Agricultural and Horticultural Society met statedly in their room in the city hall, on Monday afternoon, June 7th, President Joseph F. Witmer, in the chair.

The following members and visitors were present: Joseph F. Witmer, Paradise; H. M. Engle, Marietta; Daniel Smeych, city; Simon P. Eby, city; Dr. C. A. Greene, city; J. M. Johnston, city; F. R. Diffenderffer, city; C. A. Gast, city; J. G. Resh, West Willow; M. D. Kendig, Manor; C. L. Hunsecker, Manheim; S. S. Rathvon, city; J. C. Linville, Gap; Mr. Graybill, Petersburg; Dr. Compton, city; Levi S. Reist, Oregon; H. G. Resh, New Danville; A. F. Hostetter, city, Peter Reist, Litiz; Wm. McComsey, city; John H. Landis, Manor.

The reading of the minutes of the last stated meeting was, on motion, dispensed with.

Mr. Witmer, from Board of Managers, reported that the premium list for the coming fair was now in the hands of the printer, and would be ready for distribution some time during the coming week. The managers had changed the time for the fair to the 29th and 30th of September and the 1st of October. On motion the action of the managers was acquiesced in by the society.

Mr. Engle said the grass was very good, but there was not much of it. The hay crop will be lighter than last year. Wheat is good, although some of it suffered somewhat from the drought. The heads are not quite so well filled as they might be, although we may expect a fair crop. Corn is about as usual. Oats are kept back somewhat, and fruits have dropped off considerably. Some of the early vegetables are ripening very hastily. The drought has effected strawberries so much that a half crop can only be expected.

Mr. Graybill said a great many wheat fields have been hurt by the rust. The grass crop is very short. Corn does very well. Fruit is at present promising—better than for a number of years.

J. C. Linville said the rust was so bad that the grain in his section would shrink a great deal. The young clover in some places is killed out, although at most places it is good. The grass crop will only be about one-half, and the oats are also short. The fruit crop promises to be poor. The strawberries turned out very well, considering the great drought.

Mr. Kendig said the report from Manor was about the same as those previously given. There is a great scarcity of tobacco plants in his section. The corn is irregular in appearance on account of the dry weather.

Mr. Engle reported the rainfall for the month to be but one inch. He said he did not find any rust whatever in his wheat.

Mr. Eby thought every member should procure a rain gauge and keep a record of the rainfall.

Dr. C. A. Greene read an article on the subject of farming, farm life and fertilization in general. The essay spoke against the use of the blind and check-rein upon horses, and was replete with a number of valuable thoughts.

A number of the members also spoke against the blind and check-rein, all the members being of the opinion that the blinds should not be used when a colt is broken.

"At what stage of the growing of corn should the stirring of the soil cease?" This question had been referred to Mr. Bollinger, but that gentleman was not present. Mr. Kendig said the corn should be cultivated clean. He said that at the time he wanted to grow the ear of corn he would check the growth of fibre.

Mr. Engle said the general custom was to cultivate it as rapidly as possible. There are many good farmers who say the soil should be stirred until the tassel appears. Some gentlemen also argue in favor of root pruning. He thought it should be cultivated until it is ready to form the ear.

Mr. Linville thought the farmers quit cultivating their corn entirely too soon. Most farmers do not cultivate at all after harvest, and this he thought a mistake. He thought it could safely be cultivated until it comes into tassel.

Dr. Greene gave his experience in the cultivation of corn, showing the value of proper cultivation.

The question was also discussed by other members of the society, and various views were expressed.

Mr. Engle spoke upon the question, "Does fermentation increase the nutritive properties of feed?" He took the negative view of the question.

Mr. Linville thought an animal would assimilate more food that has undergone a certain stage of fermentation than that which has not. It must not, however, be allowed to go too far.

"What is the best time for cutting grass for hay?" This question had been referred to Mr. Calvin Cooper, but as that gentleman was absent, his views upon the subject were read by the President. Following is the essay:

There is, undoubtedly, the most nutriment in all plants used for hay, or long feed for stock, at the stage of growth when the plant of whatever kind is in full bloom. At this time all plants that reproduce themselves from seed, are in that stage of growth, when every effort of the plant is made to form the seed for its own reproduction; hence, if you would obtain the most of it, then would be the proper time to arrest its growth and preserve those desirable ingredients in the stalk previous to its concentration in the seed vessels of the plant, and to a greater or less extent in proportion to the time intervening between the blooming and cutting, are the valuable ingredients absorbed, and the woody fibre of the plant left correspondingly unpalatable. I would, therefore, cut for hay at the time when there was the most full bloom, rather (if quality of hay was the chief object) err on the side of too green than too ripe. I well know that most of our farmers think, or at least act otherwise, perhaps partly because the hay when ripe is much easier made, and they might have a little more to sell. It is also a common error to dry too much, which with the grass over-ripe, makes a rough, harsh, dusty and unpalatable provender.

The question was briefly discussed by Messrs. Linville, Engle and Eby.

The President read a communication from the President of the State College, stating that each agricultural society in the State should send three delegates to an election to be held for trustees of that institution on the 30th of June.

On motion of Mr. Eby the chair was authorized to appoint three delegates as asked for by the latter.

Mr. Smeych laid upon the table of the society a pear which since last fall has been laying around without any especial care. It was in a very good state of preservation.

The next regular meeting day falling upon the 5th day of July, the President announced that the meeting would be held on the second Monday of that month.

On motion of Mr. Engle the Secretary was authorized to invite the Fulton and Octoraro Farmers' Clubs to co-operate with this society in their fall exhibition, and that they be requested to send representatives to the next meeting.

The following questions were referred for next meeting: "When is the best time to cut briers and elders to destroy them?" to M. D. Kendig. "Is there any advantage in feeding sour milk to calves?" to H. M. Engle. "Strawberries—their culture," etc.," to John H. Landis. "How shall we use our night soil?" to Dr. C. A. Greene.

Mr. J. G. Resh, of West Willow, laid upon the table a plate of Hess Prolific cherries and a variety which he styled the "Governor Wood," both of which were pronounced to be very fine.

On motion, the society adjourned.

POULTRY ASSOCIATION.

The usual monthly meeting of the Lancaster County Poultry Association was held on Monday morning, June 7th, in their room in the City Hall.

The following members were in attendance: S. N. Warfel, President, Strasburg; J. B. Lichty, Secretary, city; C. A. Gast, city; F. R. Diffenderffer, city, Frank Griest, city; Henry Wissler, Columbia; Charles E. Long, city; George A. Geyer, Litiz; Edgar Brackbill, Strasburg; 'Squire Grider, Mountville; Joseph F. Witmer, Paradise; William A. Schoenberger, city; Charles Leppold, city; Ferdinand Schaeffer, city.

The meeting was called to order by the President, and the minutes of the last meeting were read by the Secretary and approved.

Henry Miller, of Strasburg, and W. F. Maulick, of Columbia, were proposed and elected to membership.

J. B. Lichty thought it would be well for the society to instruct the Executive Committee to agree upon a time for holding the next exhibition. He made a motion to that effect, which was adopted.

Charles E. Long thought that the same days of the week should be chosen for holding the next exhibition, experience having shown that they were the best that could have been selected.

There was a general discussion on this point, but the weight of opinion seemed to be that the Saturday of the previous week should be included, that day being one of the best ones financially.

What is the Best Food for Young Chicks in Warm Weather.

J. B. Lichty fed corn, cornmeal, table scraps, but some of his Brahmas broke down under it. Now he gives them all sorts of food and they do much better. Give young chicks as much as they can eat of everything and anything, and they will do well. Oats is excellent food for old hens.

Mr. Wissler feeds chopped corn and oats mixed with sour milk, and with excellent effect. He gives it to young and old.

The President thought the best food for chickens was that they liked best. This he found to be hot corn cakes, such as are put on the table. Cornmeal he believed to be the worst of all food. He never uses it at all. He also believed milk an excellent food. He ignored oats. Corn cakes first.

J. B. Lichty has kept a brood of chicks in the dry for three weeks and none have ever been sick. They have never had wet feet or feathers and have done very well; he believes it attributable to the dry condition in which they are kept.

F. R. Diffenderffer fed chicks bread soaked with milk for the first week, and cracked corn, boiled potatoes and meat scraps chopped fine. He uses no cornmeal at all. To his old hens he gives a mixture

of bran and ship stuff in the morning, and corn and oats in the evening. To avoid leg weakness, which several times attacked his chicks, he feeds powdered oyster shells in their food.

George A. Geyer gives his chicks wheat, cracked corn, meat and other table scraps, but he has had very bad luck with them.

Joseph F. Witmer said that but for a cat that carried off about sixty he has lost comparatively none. He gives them bran and chopped corn.

Question for Discussion.

Is the raising of poultry profitable? was the question adopted for discussion at the next meeting. Referred to Joseph F. Witmer.

There being no further business before the society a motion was made to adjourn.

LINNÆAN SOCIETY.

The society met on Saturday afternoon, May 29, in the ante-room of the museum, the President, Rev. Prof. Stahr, in the chair. Present, Messrs. Stahr, Dubbs, Baker, Kevinski, Davis, Rathvon and Heinitsh, and Mrs. Zell, Miss Lefever and two visitors. After the opening preliminaries, there were made the following donations to the museum:

1. A specimen of the "Horned Grebe," (*Podiceps cornutus.*) This beautiful bird was captured alive in Manheim township, about the first of the present month, by Mr. —— ——, and by him presented to the society, and was prepared by Mr. Geo. Hensel, of East Orange street. It was found in a public road about a mile from any stream, and was perhaps beaten down by a rain storm that had prevailed a day or two prior to its capture. It belongs to the *order* NATATORES, and the family COLYMBIDÆ, including the various species of "Divers." Judge Libhart recorded twelve species of Grebes for North America, and five for the county of Lancaster, in 1869. Of course this number includes also the species commonly called 'Loons."

2. A very large specimen of the "Tarantula" (*Mygale Hentzii,*) from the State of Missouri. Captured by Mr. Lory Suter, and presented to the society through our fellow-member, William Roehm, of Quarryville. This is the largest subject of the class *Arachnidæ*, that belongs to the territory of the United States; and its history is connected with a romantic notion that the bite of it is fatal, unless resort is had to music and dancing; but scientific progress has exploded this notion.

3. A bottle containing a number of specimens of the "Grape-leaf Flea-Beetle," (*Graptodera chalybea*) received from Strasburg and Elizabethtown, a notice of which was published in THE FARMER for May. These insects were very numerous early the present season in various districts of Lancaster county, and were very injurious to the young leaf buds of the grapevines. Later in the season the larvæ of subsequent broods destroy the fully developed foliage, and when very numerous are still more injurious to the vines.

4. A bottle containing two specimens of the larvæ of what is doubtless the "seventeen year locust" (*Cicada Septendecim*) in the twelfth year of their development, sent by Mrs. Gibbons, of Enterprise. These insects last visited us in 1868, and we may confidently look for their reappearance in 1885. Their visits, of which we have specimens, were in 1800, 1817, 1834, 1851 and 1868.

5. A bottle containing specimens of the "Great-eyed Click-beetle" (*Alaus oculatus.*) These are male and female taken in *coitu* May 15th, and were dug out of decayed wood. This is the largest species of this family (ELATERIDÆ) known to the State of Pennsylvania.

6. A specimen of the Rock of Gibralter, donated by Mr. George R. Graeff, who personally visited the rock and brought away this specimen. Although this mineral effervesces under an application of muriatic acid—similar to carb. of lime—yet it is exceedingly hard, and probably is a silicate.

7. Two boxes, weighing about one hundred pounds, containing specimens of the *Fossil flora* of Pennsylvania, from Dr. John D. Wingate, of Carbondale, Pa. These have been received in response to the action of the society at its last stated meeting. The boxes have not yet been opened, but as soon as time is found to examine them in detail a report on their contents will be submitted to the society.

8. A cabinet, about four feet high, three feet wide and three feet deep, with six drawers, containing not less than 1,200 specimens of minerals, metals, fossils and Indian arrow-heads, donated by A. J. Steinman, Esq., senior editor of *The Lancaster Intelligencer*. This was purchased by Mr. Steinman at the late J. Yeates Conyngham sale, and contains many handsome and rare specimens, received by Mr. Conyngham in his exchanges with some of the best mineralogists in the State.

9. A large specimen of *Belostoma grandis*, or "Water Bug," donated by Mr. S. K. Hostetter, of Neffsville, Lancaster county. This is the largest species of the order HEMIPTERA that inhabits North America, and is known to be destructive to the young fry in fish ponds. Mr. Hostetter found it alive in his wagon shed. These insects are amply provided with wings, and during the nuptial season raise up out of the water and fly abroad in search of their mates, or, perhaps, to seek a more favorable locality.

10. A strange fish, caught below the Columbia dam, and donated to Geo. F. Rathvon, of Columbia. It is not recognized by the fishermen, and is supposed to be a "mongrel" or allied to the species received from that locality last winter. Its identification is deferred to the future.

11. Part of the root of a "weeping willow" tree, showing a singular conformation to the base of a tombstone, illustrating the moulding as sharply as if cut out with a chisel, raising the tomb entirely out of position. Donated by Mr. L. Haldy.

12. A small vial containing specimens of the insects known as "flea beetles" and "garden fleas," or "snow fleas," which have recently been very injurious to the young tobacco plants.

Prof. Baker presented the singular leaf and flower of a species of "pitcher plant," (*Sarracenia purpurea.*)

Mrs. Zell donated a singular species of fungus, commonly called "pepperbox puff-ball" (*Lycoperdon.*) She also exhibited several other plants.

1. Four additional volumes of the *Second Geological Survey* of Pennsylvania, donated by the distributing officers in charge. One of these volumes is a continuation of the illustrated fossil flora of Pennsylvania, and in artistic execution will compare favorably with any other similar publication in the country, and is a credit to the State.

2. Proceedings of the *American Philosophical Society* from January to March, 1880, full of interesting historical lore.

3. Parts 17, 18, 19, 20 and 21 of the Official Gazette of the United States Patent Office.

4. THE LANCASTER FARMER for May.

5. A memoir of William Reynolds, Rear-Admiral U. S. N., and John Fulton Reynolds, Major General U. S. A., Col. 5th U. S. Infantry; donated by Chas. A. Heinitsh.

6. Catalogue of rare English and American publications, and also a number of circulars.

Twenty entire arrow and spear-heads, and as large a number of fragmentary specimens from Florida. These specimens are from Prof. Haldeman's collection, and were donated to the society by Mr. Wm. L. Gill. What is a special peculiarity about these relics is that they are all made out of finer qualities of stone, and of an average larger size than we usually find them in Pennsylvania. Some of them are of agate, some of chalcedony, flint, hornstone and jasper, or varieties of these. Mr. G. also includes the *Operculum* of a univalve California shell in his donation, probably belonging to a species of *Fulgur*, similar specimens being found along the shores of Delaware Bay.

Dr. M. L. Davis illustrated some of the wonders of the microscopic world, exhibiting a fine mounted specimen of kinate of quinine—one of his own mounting—which he afterwards presented to the society.

Dr. Rathvon offered the following, which was unanimously adopted as the sense of the society:

Resolved, That the society hereby records its sincere thanks—jointly and severally—to the gentlemen, named and unnamed, who have on this occasion tendered their liberal donations to the museum and library of the society.

The committee on the issue of a BULLETIN not being ready to report was therefore continued to a future meeting.

Under the head of "Scientific Gossip" Dr. Dubbs extemporized on his examination of what is supposed to be an ancient wall, on a hill, midway between Mechanics Grove and Chestnut Level.

The wall is built of sandstone, without mortar. He does not regard it as pre-historic, but thinks it likely a fortification built in the early history of our country, probably during the difficulties between the Marylanders and the Pennsylvanians, in which the famous marauder Cresseps exhibited such an active participation. Skirmishing, capturing and recapturing were freely participated in by those old pioneers of the past.

The doctor will visit the place again and commit a fuller description to paper, and file it in the archives of the society.

No other business being before the society, it adjourned to meet on the last Saturday in June (26th prox.)

ENTOMOLOGICAL.

The Army Worm in Lancaster County.

Since the receipt of the worms on Thursday, June 3d, from Jacob S. Eby, of Upper Leacock township, I have received the following letter, accompanied by the same species of worms, and will therefore answer both correspondents in the same paper:

MANHEIM, June 9, 1880.

S. S. RATHVON—*Dear Sir:* I send you by this mail a specimen of worms which I found this morning in a small field of wheat. My attention was attracted by the great number of them, and I am fearful that perhaps they may prove to be the army worm. I examined some other almost adjoining lots, and in some cases found a few, in others none. In the wheat they are at present feeding principally on the leaf or straw, but some are also on the heads. I found them numerous in a patch of oats, and in some grass. If of sufficient interest an answer through THE FARMER will oblige,

Truly yours, B. H. HERSHEY.

WHAT THEY ARE AND WHY SO NAMED.

There are several species of worms that have received the common name of "army worm," simply because they are gregarious in their social habits, but both these lots are the real, original and veritable "army worm," scientifically called *Leucania unipuncta*, and sorry am I that I am compelled to make such a discouraging record. It is not at all surprising to me that the army worm should be found in Lancaster county, for I have occasionally found a single individual, or more, nearly every season during the last twenty years; not only of the true army worm, but also of the "white-lined army worm" (*Leucania albilinea*). Short articles on the latter have been published on page 165, Vol. IV., and on page 102, Vol. VIII., of the LANCASTER FARMER. Indeed, the possibilities for their development in this latitude always exist, and perhaps always will exist, so long as wheat, rye, barley, oats and grasses are grown. They have no special partiality for clover, (although they will eat it when they can get nothing better,) but the bladed cereals they are particularly fond of, and when they consume one field and have not finished their larval development, they will migrate, like a moving army, to another field, and from this habit is derived the name of army worm.

HOW TO STAY AND DESTROY THEM.

When a field becomes destructively infested—although there are applications that would kill them—it perhaps would cost as much to exterminate them as an average wheat crop would be worth, and might also involve the entire destruction of the crop. But they can be prevented from passing from one field to another, by running a deep furrow around the field, with its perpendicular side next to the field intended to be saved, up which perpendicular side they cannot well climb, for losing their hold they will fall back again to the bottom. Here they can be captured and destroyed. It has been recommended to scatter dry straw over them in this trench and then set it on fire and thus destroy them. Perhaps any other combustible material would answer as well as straw—for instance, coarse sawdust saturated with coal oil or gas tar.

THEIR DEVELOPMENT.

Fortunately, if the season is favorable and the grain ripens rapidly, their damage to it will thereby be limited; but more fortunately still, they usually complete their larval development within the month of June, and then go into the ground to pupate, and issue forth a moth about the middle of July. The sexes then pair, and the females deposit their eggs on the stubble of grass or grain, and those eggs remain there until the following season, for there is but one brood during the year. The young are so small when they first issue from the eggs that their presence is not observed, and therefore it is only when they become about half grown and their voracity has greatly increased that their presence becomes conspicuously manifest, and then people become astonished at their sudden appearance.

PRECAUTION TO BE ADOPTED.

Now, when a grain or grass field has been badly infested by the army worm, if everything is favorable to their development during the intervening season, it seems evident that their numbers may greatly increase in the following year. Therefore it is recommended to burn off the stubble in the fall, or turn it deeply down with the plough.

HABITS OF THE ARMY WORM.

These army worms belong to the great family of "cut worms," and like all of that tribe, if you touch them or attempt to capture them they will immediately fall to the ground and curl themselves into a compact circle and remain in that condition for some time, and any attempt to straighten them out will be firmly resisted, even to the rupture of their bodies. The moths are generally called "owlet-moths," and belong to the family NOCTUIDÆ, or "Night-fliers," because they usually remain quiet or secreted during the day and fly abroad at night; if, therefore, luminous traps are set in the fields, after the crops are removed, millions of them may be captured.

HOW TO DESTROY THE MOTH.

A large and shallow tub or basin of water with a globe lamp in the centre would constitute such a trap. If the farmer did not wish to burn off or turn down the stubble, on account of a prospective crop of grain or grass the following year, the trap would be the only thing to resort to, but might not be entirely effective, as some of the moths may deposit their eggs before they are trapped, or might roam off to some other part of the farm. An ordinary moist season, succeeding a mild winter, or a previous dry season, is usually considered favorable to the army worm's development.

THE ARMY WORM DESCRIBED.

The true army worm, when fully grown, is fully 1¾ inches in length, and is striped lengthwise with black, dull swarthy green, and yellowish lines, interlineated with marginal white hair-lines. The head is light, or yellowish brown, and has two blackish bent lines on the face. It has sixteen feet—six small black ones in front, eight fleshy ones along the middle part and two at the hinder end. On the outsides of the eight intermediate feet are conspicuously a black spot on each. The body of the moth is stout, and it is nearly or quite two inches across the expanded wings. The front wings are of a dull or dirty yellowish color—variable, however, in intensity—faintly sprinkled with blackish dots. There is a single kidney-shaped spot, more conspicuous than any other spots, about the outer third of the front wings, from which the moth derives the specific name, *unipuncta*. The hind wings are partly transparent, with a smoky and purplish appearance; the whole, with other markings, not essential, except in a purely scientific description. The front and posterior parts of the body are assimilated in color to the wings.

ITS ENEMIES.

The army worm has several natural enemies which, no doubt, do much in lessening its numbers, and it may also be affected by weather contingencies; hence, one season it may be very abundant, and then not noticeable again for many years. Hogs are very fond of the larva and the pupa, and it is presumable that many are destroyed by birds, as it usually occurs about their hatching season.

Nearly a dozen species of insect parasites have been described as infesting it, conspicuous among which are six species of "cuckoo flies;" and at least two species of "Tachina flies." Possibly many that go into the earth to pupate never come forth again.

Insects, and How to Fight Them.

Ants.—When these insects are troublesome in the garden, fill small bottles two-thirds with water, and then add sweet oil to within an inch of the top; plunge these into the ground near the nest or hill to within half an inch of the rim, and the insects coming for a sip will get into the oil and perish, as it fills the breathing pores. The writer once entrapped in a pantry, myriads of red ants in a shallow tin cover smeared with lard, the vessel having accidentally been left in their track. Another means of entrapping them, suggested to me by Prof. Glover many years ago, is to sprinkle sugar into a dampened sponge near their haunts to attract the insects. When they have swarmed through the sponge it is squeezed in hot water, and the trap is reset until the majority of the insects are killed.

Slugs.—English gardeners place handfuls of bran at intervals of eight or ten feet along the border of garden walks. The slugs are attracted to the bran, and in the morning each little heap is found covered with them. The ground is then gone over again, this time the operator providing himself with a dust-pan and small broom, and an empty bucket; and it is an easy matter to sweep up the little heaps, and empty them, slugs and all, into the bucket. In this way, many hundreds have been taken in a single walk; and if a little salt and water be placed on the bottom of the bucket, the slugs coming in contact with it are almost instantly destroyed.

Cut Worms.—Where cut worms are troublesome in the field a very old, and at the same time a very good remedy, is to entrap them in holes made near the plants, or in hills, if in the corn field. An old rake-handle, tapered at the end, so as to make a smooth hole five or six inches deep, or more, will answer very well for this purpose. In the morning the worms that have taken refuge in these holes may be crushed by thrusting the rake-handle into them again, and the "trap" is set for the next night. It is always well in planting to make provision for the loss of a stalk or two, by cut worms or other causes, as it is easier to thin out than to replant.

May Beetles.—These are the perfect insects of the white grub, so destructive to lawns and sometimes to meadows. A French plan for destroying, or rather catching, the cockchafer (a very similar insect), is to place in the centre of the orchard, after sunset, an old barrel, the inside of which has been previously tarred. At the bottom of the barrel is placed a lighted lamp, and the insects, in circling around to get at the light, strike their wings and legs against the tarred sides of the barrel and either get fast or are rendered so helpless that they fall to the bottom. Ten gallons of beetles have been captured in this way in a single night.

The Tobacco Worm.

A writer in the Blossburg *Industrial Register* says:

"In our younger days we had considerable experience in the growing of tobacco. We found that the common cut worm was the greatest enemy of the young plant, often making such severe attacks that we were obliged to rest several times, thereby making the crop very uneven. In order to circumvent this malicious and voracious enemy of the tobacco plant we adopted the following plan, which was a complete success: About three weeks before we wished to set the tobacco plant we plowed our tobacco field and before harrowing it sowed about three bushels of buckwheat to the acre, and then immediately proceeded to mark out the rows and make the 'spats' or hills for setting. By the time we wished to set the tobacco plant the buckwheat had grown to be about the same size of the tobacco plant, and was found in the same hill. 'spat,' or place where the tobacco plant was to be set. This was no annoyance. We set our tobacco and awaited the result. We found that the cut worm was just as fond of young and fresh buckwheat stalks as it was of tobacco, and there being three hundred stalks of buckwheat to one of tobacco the chances for the protection of the tobacco plants were in that proportion. In about two weeks the buckwheat was removed from between the rows, and in a week more from around the hill, and the danger was over; the cut worm had outlived his virulence and was ready to die by the heat of the sun. The field of tobacco was even, it ripened at the same time and could be harvested and taken care of at the same period, and brought a better price in the market on that account.

Ravages of the Army Worm in New Jersey.

Red Bank, N. J., June 7.—The newly arrived pest, the army worm, which has just put in an appearance here, is completing the terrible destruction commenced by the great drouth. As soon as the worm was discovered active measures were taken to stop its progress, but at first it was not recognized in its proper character, and the same method used in fighting the potato bug was used to destroy the army worm. Reports from Long Branch, Mechanicsville, Morrisville, Shrewsbury, Middletown and Tinton's Falls say that the ravages made by this insect have been very severe. It is reported that acres of timothy belonging to Geo. Hance, at Tinton's Falls, were destroyed in one night. On the farms of Samuel Hendrickson, near Rumson, and George Stillwell, at Shrewsbury, the damage is very great. About Freehold and Marlborough, and on towards Keyport, the worms are found in great numbers, and move in solid phalanx. When once they attack a wheat, rye, corn or grass field they do not pass out of it until they have left nothing edible in it. The worms for some cause avoid clover fields, but will strip a timothy field quicker than a mowing machine. The greatest depredations are reported at New Bedford. There the farmers are reported as being unable to cope with the scourge. The appearance of the worm was sudden, and it was not recognized, twenty years having elapsed since the army worm last visited this region.—*Baltimore Sun.*

AGRICULTURE.

Fruit and Grain Prospects in Berks.

The fruit and grain prospects in Berks are very promising. This is the news from all quarters. From Upper Bern, a *Times and Dispatch* correspondent writes thus: The fruit crop, from present appearances, will be very heavy. Apple trees never blossomed so much as this spring, and the trees are all in a healthy condition. If the apple crop will turn out as the indications are at presen, thousands of bushels will be harvested in this section of Upper Bern; but while apple trees bloom so profusely, pear trees do not, and only a very light crop can be gathered. Peach and all kinds of plum trees were covered with flowers, and the indications at present are that the crop will be very large. Frost has done no damage to the peach and plum crops. Cherries, it is thought, have suffered most during the recent cold spell, although the trees are all covered with flowers. No heavy crop is expected. Quince trees will also bloom profusely, and a large and paying crop is expected. Strawberry buds appear very encouraging, and even the wild plants in fence corners are literally covered with blossoms. Nothing can as yet be said about blackberries and raspberries, but it is thought that a good crop can be harvested. Grapevines are somewhat backward this spring, but they may yield a good crop. All indications point to heavy fruit crops in this section and all over northern Berks. Our farmers in this and adjoining townships are busy at preparing their land for this season's corn crops. Some have already planted a good deal of corn. Early potatoes look promising, and the bugs, it seems, do not make much headway this season, at least they have made no trouble thus far. The wheat crop looks splendid, and the hearts of farmers are gladened over the prospect of a good harvest this year. If nothing unforseen happens, the wheat crop will be the heaviest harvested in this section for many years. Rye did not look very encouraging early in the spring, but the crop has of late recovered, so that a moderate good crop is expected. Oats look well, and needs only good weather for a paying crop. Grass on stubble land don't look well, and will not yield a heavy crop of hay or pasture; in old fields it will, with favorable weather, yield a heavy crop. If all things are taken into consideration, our farmers have at present no cause of complaining.

Something a Farmer Should Know

As a general thing the farmer is liable for all the public injury his hired man may cause while actually employed by him. If he sends him into his lot to burn old brush, and he, for any purpose whatever, leaves it and the fire runs into his neighbor's lot, destroying his fence and injuring his crops, the farmer is liable for the damages caused by the wanton neglect of his man. If he sends a hired man on to the road with a team and he by negligence runs into another vehicle and injures it, or the person who may be in it, the farmer is liable for the damages; but should the hired man leave the road he was directed to go and travel another road for his own pleasure or profit, then the farmer would not be liable for damages should any accident occur. If a hired man, in going to or from the lot with a scythe, and by the careless handling or carrying he injures a passer by, the farmer is liable for the damages. If in cutting wood the hired man cuts down a tree in another lot the owner is liable for trespass and damages, although he distinctly showed him the boundary, and though the man may have cut the tree with malicious intent. Should the hired man, from maliciousness, run into a team, even if it block his way, yet the farmer must pay the damage, though done contrary to his positive orders. In all these cases the farmer can compel the hired man to pay him back if he has anything to pay with; but this is rarely the case unless the farmer keeps back his wages and only settles when his time expires.

Improved Method.

Farming, of all occupations, is susceptible of the greatest advance through a thorough study and knowledge of nature's forces and workings. An hour's thought and planning may save a day's hard work. A single principle, well understood, may determine a course that will double the crop or divide the expense of cultivation. As brain is superior to muscle, so is an improved method in advance of some clumsy and expensive way of accomplishing the same result. Let every farmer resolve from this day to give to his occupation more thought and study, more experiment and investigation. Let him determine to understand nature better, and not rest content with misdirected force, or with such labors as are not guided by the best lights of modern science and investigation.

Washing of Hill-Sides.

One of the most successful methods of preventing serious damage from washing of cultivated hill-sides during heavy storms, is to terrace the hill by plowing. At short intervals two or three furrows of the soil are turned down hill, thus making a nearly level bank at short distances, as you pass down the slope. The last furrow makes a channel in which the downward water is caught, and may be carried off at one side of the hill—at any rate it will arrest the rapid downward flow and give the water more time to soak into the soil. A hill side, specially given to washing, should be put into grass after being terraced. With terracing and a firm sod as a covering, very little damage may be feared from gullies made by descending water.

Haying.

Clover and timothy should be cut when in full blossom; if allowed to get ripe the quantity of hay is not so good. By beginning early the work need not be hurried. Use the mower after the dew is off in the forenoon. Cut only as much as can be well cared for. It is often remarked that the average quality of hay is not so good as before the introduction of the mowing machines, from the temptation to cut the grass faster than it can be cured.

HORTICULTURE.

Root Pruning.

One who has thoroughly experimented with root pruning, and who evidently understands well the subject, furnishes some valuable information on failure as well as of success. As the operation is to be employed only on trees whose vigorous growth is at the expense of productiveness, the mistake is sometimes made of root pruning trees already too feeble, and thus increasing the difficulty. The tree becomes still more stunted, and the fruit smaller than before. Failure has resulted whenever the pruning has been performed too late in the spring, or after the buds have swelled or expanded. In other instances the pruning has been too severe, the roots being cut as short on large trees on small ones, without judgment or discretion. The experiments were made on the apple and pear. A vigorous apple tree, eight or ten years old, which had scarcely made any fruit buds, has done best when about half the roots were cut in one season and half three years later, by going half way around on opposite sides in one year, and finishing at the next pruning—working two feet underneath, to sever downward roots. It has always answered well, also, to cut on such trees, all the larger and longer roots about two and

a half feet from the stem, leaving the smaller and weaker ones longer, and going half way round, as already stated. The operation was repeated three or four years later, by extending the cut circle a foot or two farther away from the tree. By this operation, unproductive trees became completely studded with fruit spurs, and afterwards bore profusely. This shortening of the roots had been continued in these experiments for twenty years with much success—the circle of roots remaining greatly circumscribed. The best time for the work has been found to be in the latter part of August and beginning of September, when growth has nearly ceased, and while the leaves are yet on the trees—causing a greater increase of bloom buds the following year than when performed after the leaves have fallen. In one case twelve-foot trees were cut half way about in one year, and the remaining half the next, and the third year a part were transplanted: and so little did they suffer from the removal, after the shortening of roots, that they bore a good half-crop the same year.

It cannot, of course, be applied to extended orchards, but only to a few valued trees which grow fast and bear slowly: and there are situations when bringing the roots densly within a smaller compass, may favor the advantageous application of manure.

It must be constantly borne in mind that the extent and frequency of the pruning should depend on the condition of the trees, some requiring little cutting of the roots, while others may need a more severe application of the process; the distance of the pruning from the stem of the trees, its amount and frequency varying greatly with their condition and degree of vigor.

Garden Herbs.

Every well-kept garden should have a due proportion of garden herbs, but with the exception of some coarse fellows which know how to take care of themselves, such as catnip and chamomile, there are seldom any to be found. Those popular and useful, sage, thyme and parsley, are seldom grown except by those who make specialties of them for the market.

Of parsley we have frequently given hints. In substance we stated that it must be sown very early and on cool, rich ground; and that if the seeds did not appear for a month, still one should have patience, for it is one of those deliberate sort of fellows which often take a long time to decide what they intend to do about it.

In regard to sage, many have it for a year or so, when it disappears. To have sage continuously, it is best to treat it every second year as we would boxedgings, that is, it should be taken up, split apart, and set in the ground much deeper than it was the year before. Roots then come out from the vigorous young wood, and the plants seem better adapted to stand extremes of heat and cold than when the branches are exposed on long stalks. Sage is not so liable to get killed out in the winter when it is cut back hard in the fall as when it is left untouched. Many cut back some of it for drying. Indeed, dried sage is the form in which it is chiefly used. When this is done regularly the plants do not need replanting often.

Thyme usually manages to live through in this part of the world, though nothing be done to it; but it is also better for being cut back close every fall, and for an occasional replanting.

Salt the Garden.

Gardens should be salted very liberally, for by so doing you will have no worm eaten radishes, maggoty onions, club-footed cabbages, or any other vegetable grown in it injured by worms, grubs, or any vermin that infest the soil. Every one that raises asparagus knows the necessity of using salt abundantly. One can scarcely use too much. Many who grow cabbages know its value when applied to the roots or growing head: but every one does not know that growing onions may be buried under salt, leaving only the tops out, and that the onion will grow thriftily, while all maggots or worms will die or disappear—yet such is the fact. Salt mixed with wood ashes in the proportion of one of salt to four of wood ashes, applied at the rate of a handful to the centre of each hill of corn immediately after planting, will supersede the use of scare-crows and coal-tar, as no worm or crow will touch it, besides giving the fertilizing properties of the compound. A friend residing in Edmestown, Ostego county, who had broken up four acres of sward upon which to plant corn, found it to be so very wormy, that he dared not plant it, until I gave him the above receipt, which he used after planting. In the fall he told me that, although his lot had woods upon three sides of it, he did not lose a single hill by worm or crow. The fact is worth remembering.

Isn't it Hard on Trees?

Is a question we are often asked in connection with planting small fruits among them. Yes, if you don't feed the soil to give back as much or more than they take off. We have planted in our orchard a row of blackberries in tree rows and one row between tree rows—apples and peaches—one rod apart. After the second year, and the blackberries get well into bearing, we scatter along in the blackberry rows (after leaves have fallen and they have ceased their growth), coarse barnyard manure, old straw that is partly rotted, coal and wood ashes, or leaves from the woods near by—in fact, anything in the way of manure or mulching material that is most convenient and cheap.

We have another, a younger orchard, in which we planted red raspberries, a year ago, in hills, two hills between each row of trees each way, (trees—peaches and apples, a rod apart each way.) This fall we shall not only throw a shovelful of well-rotted compost around each tree, but also around each plant. By this mode of applying the manure one will see that it is equally distributed over all the ground, and that the extremity of the tree roots (the very part needing it the most) are well supplied.

In another young orchard we have strawberries planted, and on the plants we have scattered bone dust liberally this summer on some, and on others poured liquid manure from the barnyard, so that not only are the small fruits benefited, but the trees also. If one expects to crop the ground under the trees year after year without feeding it back, why of course it is "hard on trees."—*Fruit Recorder.*

DOMESTIC ECONOMY.

Hints on Household Matters.

Mending a Carpet.—My dining-room carpet was only a rag carpet to begin with: latterly it had become a ragged one. I was contemplating it ruefully one day, knowing that the state of my purse would not allow me to replace it just yet with a new one. I could think of no way to mend it, but by big patches tacked in place. In the midst of my dilemma an experienced old lady entered, who suggested paste instead of tacks. "I have repeatedly put muslin patches over the carpet with paste," said she, "and it is surprising how well it holds." I took the hint. Patches are not, in their nature, beautiful, yet a patched garment is decidedly better-looking than a ragged one, and the same is true of a patched carpet, and my patches were so easily applied and proved so adhesive, that I rarely sweep the room without a mental benediction upon the one who suggested it.

Cutting Hot Bread.—One day company arrived unexpectedly. Supper was just over and no bread had been left. I had just taken from the oven some delicious looking light bread, but it was too hot to cut. We live in a country place where there is no baker. In my bewilderment I happened to remember that in Mrs. Whitney's Cook Book "Just How," she suggests heating a knife, in order to split open a hot short-cake. Why, thought I, may not smoking-hot light bread, be sliced with a hot knife! It is the cold surface of the steel applied to the warm dough that produces a disagreeable clamminess. I heated my carving knife and tried it. The bread sliced beautifully, and as I piled it up to bring it to the table I put it on a plate upon which I had laid a fresh napkin, for the contact of the hot bread with the cold plate would have produced the same sodden clamminess on the surface of the lower slice. Of course I would not recommend the slicing of hot loaves except upon emergencies. As a frequent diet it might prove injurious, but not more so than other warm breads.

Putting Away Tubs.—A very little thing, yet worth knowing. One week my regular washerwoman could not come, but sent a substitute. When she returned, on the following week, I found her tugging away at a nest of tubs, finding it almost impossible to pull the inner one from the enclasping outer one. "I never have this trouble," said she, "when I put the tubs away myself." "How do you avoid it?" I questioned. "Why do you not see she has put all the handles in a straight line. Now, I always set them away so that no two handles shall come together. Then, if they do swell, I can have thorough use of the handles, and with them the tubs are soon separated."

Turnips on the Griddle.—I had seen for some time a statement going the rounds of newspapers, that a turnip used in rubbing the griddle, while cooking griddle-cakes, would give the desired smoothness and do away with the unpleasant smoke. I doubted it, but a trial soon convinced me that the statement was correct. I found, however, that at times, it was necessary, when beginning, to put a very little grease on the turnip, but this made no appreciable smoke.

Right and Left.—My little boy was left-handed. I had found, by experience, that school-life would be particularly irksome to him, if that defect were not remedied before he began school. It was useless for me to try to persuade him to draw pictures on his little slate with the right hand. That hand was really weaker than the other; he could not guide it. So I made little pictures on the slate, nothing intricate, then rubbed them off with my finger till only the dim outline could be seen. These I required him to trace. The weak hand that could not originate a line, could, little by little, approximate the rubbed outlines. Afterwards, by the same plan, I taught him to write the letters of the alphabet, and by the time he was old enough to go to school, he had learned to use his right hand.—*Amer. Agriculturist.*

The Sewage Waste of the Family.

We are making some progress, both on the farm and in the village, in utilizing the contents of the sink-drain, and the water-closet, or the earth-closet. But still there is great room for improvement. We consume in our families abundance of animal food, furnishing all the materials out of which plants are made. These fertilizing matters are nearly all wasted, unless there is some contrivance to incorporate them with the soil. If properly saved, the wastes of the family would fertilize the half-acre garden adjoining the dwelling, and make it produce maximum crops of fruits and vegetables for the supply of the table. We have tried the two most common methods, that of composting fecal matters, and that of turning them into a cistern for the manufacture of liquid manure. While both are good, and each has its advantage, we prefer the application of these wastes in the form of liquid manure. There is not much choice in either case as to the labor to be expended in conveying fertilizers to the soil. The use of the liquid manure involves a little more expense in the fixtures. For this purpose a cistern is needed of sufficient capacity to hold all the water used in the family for six or eight weeks. The privy vault enlarged and cemented will answer a good purpose. A large earthen or iron pipe four or more inches in diameter, should conduct the sink and laundry water into this cistern. This liquid manure can be used to advantage at all seasons of the year. For the seven months or more it is available for direct application to growing vegetables and fruits in the garden, and for the winter season it can be pumped on to the compost heap where all the vegetable wastes of the garden, and leaves, and muck, are fermenting for next season's use. This liquid not only furnishes plant food, but supplements the rain-fall which is oftentimes quite deficient for maximum crops. So great is the satisfaction of seeing luxuriant vegetation in the garden, and of eating well-grown fruit and vegetables, that we should use liquid manure even if it was more expensive.—*Connecticut, in American Agriculturist.*

Curing Fruit by Cold.

An experiment was made at a foundry in Placerville, lately, in fruit-curing, by blasts of cold air. In this experiment about a peck of sliced apples were placed in a sieve and subjected to a cold air blast for three hours in the cupola furnace of the foundry, and the fruit is reported to have been completely and beautifully cured by the treatment, remaining soft without the slightest discoloration. We were about to say dried, but cured is a better word, for there was none of that hard, harsh, stiff dryness about it which frequently results by sun-heat or fire-heat. The experiment was a most gratifying success, and, in our judgment, is fraught with results of great importance to the growers and manipulators of fruit. The blast of cold air completely frees the fruit from its excess of moisture, with no possibility of burning or shriveling it. Compared with our sun-drying, it effects a great saving, expense, attention and risk. Anybody who can command or devise a strong blast of cold air, can dry fruit in a superior—we might say perfect—manner, without being dependent on the weather and waiting on the slow process of sun-drying, and without the most expensive resort to fuel and risk of overheating.

Use Onions.

The healthy properties of onions have never been fully understood. Lung and liver complaints are certainly benefited, often cured, by a free consumption of onions, either cooked or raw. Colds yield to them like magic. Don't be afraid of them. Taken at night all offence will be wanting by morning, and the good effects will amply compensate for the trifling annoyance. Taken regularly they promote the health of the lungs and the digestive organs. An extract made by boiling down the juice of onions to a syrup, and taken as a medicine, answers the purpose very well, but fried, roasted or boiled onions are better. Onions are very cheap medicine, within everybody's reach, and they are not by any means as "bad to take" as the costly nostrums a neglect of their use may necessitate.

Cocoanuts for Hanging Baskets.

The shell of the cocoanut is so hard and durable that it can serve an excellent purpose as a hanging basket for small plants. If cut across in the middle, a single shell will make two baskets; it is perhaps more artistic to remove one-third of the space of the shell and use the rest. The shell of itself is "rustic" and harmonizes with plants.

To Clean Waste-Pipes.

Dissolve four or five pounds of washing soda in boiling water, and throw down the kitchen sink. It will prevent the pipes stopping up with grease. Do this every few weeks.

HOUSEHOLD RECIPES.

WASH FOR INFLAMED EYES.—Take 10 drops extract of lead (the liquor of the acetate of lead); distilled vinegar, 4 drachms; distilled water, 4 ounces.

OFFENSIVE SMELL IN THE FEET.—Bathe them in a weak solution of permanganate of potassa; 1 scruple of the salt to 8 ounces of water.

CHILBLAIN LINIMENT.—Mix 1 fluid ounce rectified oil of turpentine, 15 drops sulphuric acid, and 2 ounces olive oil; rub gently on the chilblains twice a day.

POWELL'S COUGH BALSAM.—Mix 2 drachms syrup of tolu, 1 ounce paregoric elixir, and 2 ounces liquorice juice.

TO CLEAN VARNISHED PAINT.—Boil a pound of bran in one gallon of water an hour, and wash the paint with the bran water.

HONEY SOAP.—White curd soap, 40 pounds; melted and mixed with white honey, 10 pounds; borax, 2 pounds; and powdered benzion, 1 pound.

TO RELIEVE VOMITING DURING PREGNANCY.—Mix 2 ounces sweet tincture of rhubarb, and 1 ounce compound tincture of gentian. Dose, a teaspoonful 3 times a day.

INTERMITTENT FEVER MIXTURE.—Take 5 grains tannin, 16 grains sulphate of quinine, 1 ounce syrup of ginger, and ½ ounce cinnamon water. Take 1 teaspoonful every hour, in the absence of the fever.

PRECAUTION AGAINST NIGHTMARE.—Avoid all exciting causes, as too much abstruse thinking, late and heavy suppers, food difficult of digestion, cold feet, costiveness and flatulence.

CURE FOR SOFT CORNS.—Dip a piece of linen rag in turpentine and wrap round the toe on which the corn is situated, night and morning. The relief will be almost immediate, and in a few days the corn will disappear.

TO RELIEVE HARD CORNS.—Bind them up at night with arnica, to relieve the pain. During the day occasionally moisten the stocking over the corn with arnica, if the shoe is not large enough to allow the corn being bound up with a piece of linen rag.

CURE FOR EARACHE.—Take a common tobacco pipe, place a wad of cotton in the bowl, drop upon it 8 or 10 drops of chloroform, and cover with another wad of cotton; place the stem in the affected ear, then blow in the bowl, and in many cases the pain will cease almost immediately.

TO REMOVE WARTS.—Touch the wart with a little nitrate of silver (lunar caustic); or with nitric acid or aromatic vinegar. The lunar caustic produces a black, and the nitric acid a yellow stain, which passes off in a short time; the vinegar scarcely discolors the skin.

TINCTURE OF MUSK.—Rub ½ once musk in a warm mortar with a little sugar; macerate for a month in 7 ounces alcohol containing 1 ounce each tincture of ambergris and tincture of vanilla. Filter thoroughly, and then add a few drops of ottar of roses.

TO KEEP OIL CLOTHS LOOKING WELL.—Wash them once a month in skim milk and water, equal quantities of each. Rub them once in three months with boiled linseed oil. Put on very little, rub it well in with a rag, and polish with a piece of old silk. Oil cloths will last years if kept in this way.

TO CLEAN SOILED RIBBONS AND SILKS.—A mixture of alcohol and highly rectified benzine is excellent for cleaning ribbons and silks. It is applied with a clean sponge. Persons must be careful not to use this mixture in an apartment where there is a fire or lamp burning.

ORANGE BITTERS.—Macerate 6 pounds orange peel for 24 hours with 1 gallon water, cut the yellow part of the peel from off the white, and chop it fine; macerate with 4¾ gallons 95 per cent. alcohol for two weeks, then add a syrup made of 4¼ gallons water and 16 pounds sugar. Filter through Canton flannel.

HAMBURG BITTERS.—Grind to a coarse powder 2 ounces agaric, 5 ounces cinnamon, 4 ounces cassia buds, ½ ounce grains of paradise, 3 ounces quassia wood, ¾ ounce cardamon seeds, 3 ounces gentian root, 3 ounces orange apples dried, 1½ ounces orange peel; macerate with 4¼ gallons 95 per cent. alcohol, mixed with 5¾ gallons water; add 2¾ ounces acetic ether; color, brown.

TO REMOVE STAINS FROM KID GLOVES.—Stains may be removed, even from the most delicately colored gloves, by suspending them for a day in an atmosphere of ammonia. Provide a tall glass cylinder, in the bottom of which place strong aqua ammonia. Be careful to remove from the sides of the jar any ammonia that may have been spattered upon them. Suspend the gloves to the stopper in the jar. The gloves must not come in contact with the liquid.

BROWN WINDSOR SOAP.—Curd soap, 100 pounds; cocoanut oil soap, and pale yellow resin soap, each 25 pounds; color with caramel, 8 ounces; and perfume with a mixture of cloves, cassia, lavender, attars of caraway, thyme, and petit-grain, each 8 ounces. Morlit's oleic soap, of first grade, is peculiarly adapted as a body for brown Windsor soap, as it gives a rich lather, and is very smooth and highly emollient. It contains its normal moisture for a great length of time.

CHILDREN'S PUDDING.—Grease the pan a very little, then put a layer of apples in the bottom, then a layer of crumbs, then a little sugar, and so on until the dish is filled. Pour a little water in, and cover over with a plate or tin, and set on top of the stove, and let it remain until the apples are nearly cooked; then put in the oven and let it brown over nicely. The apples should be the last layer. Eat with milk, or cream and sugar. This pudding will bake very quickly.

PUDDING WITHOUT MILK OR EGGS.—Make a dough as for biscuits, or to every pint of flour one teaspoon of baking powder, half tablespoon of melted suet or butter, saltspoon of salt, water or sweet milk to make a soft dough; roll half inch thick, cover with fruit of any kind, sprinkle with sugar and roll, pressing the edge down and ends together; lay a cloth in a steamer, place the dough on it and steam an hour. If dried fruits are used, they should first be stewed. Serve with sauce. This may be warmed over by steaming. Excellent, and may be made with chopped suet and steamed three hours.

BOILING FISH.—Ten minutes to every pound of fish is a fair average; if large and thick, a few minutes longer; cover close; simmer rather than boil; take out *immediately* when done. A fresh cod, of four or five pounds, takes about twenty minutes to boil. Never put the fish in till the water is boiling hot. Salt fish should never boil for a moment, as it makes it hard; it should lie in scalding water two or three hours and then be allowed to simmer, and the less water you use and the longer it simmers the better it will be. The fish is done when the meat is easily detached from the bones.

BAKED INDIAN PUDDING.—Pour enough boiling water on two cups of meal to wet it thoroughly; then add one-half cup of butter, well beaten with one cup of sugar, till like a cream; two well-beaten eggs, a little salt, two cups of milk, two tablespoonsful of molasses, nutmeg and cinnamon to suit the taste; one teacup of stoned raisins, slightly chopped; bake slowly three hours. If preferred, use two-thirds of a cup of finely chopped suet instead of butter; instead of raisins a cup and a half of dried whortleberries are very nice, or two cups of finely chopped sweet apples instead of any other fruit is excellent.

TO ALLAY TEMPORARY IRRITATION OR WEAKNESS IN THE EYE.—Temporary inflammation, produced by cold or external causes, is rapidly allayed by frequently bathing the eye with lukewarm milk and water, or rose-water; applied either with a linen rag or by means of an eyeglass. A poultice of tea leaves (the wet leaves left in the tea-pot) is also an excellent remedy. Probably the best remedy of all is to put a tablespoonful of salt in a basin of water (say ½ gallon,) immerse the face in this twice a day, opening the eyes under the water, and using fresh salt and water every day. The eyes should under no circumstances be rubbed, as that will increase the irritation.

A SUPERIOR OMELET.—Beat six eggs very light, the whites to a stiff froth that will stand alone, the yolks to a smooth thick batter; add to the yolks a small cupful of milk, then the pepper and salt to season properly; lastly, stir in the whites lightly. Have ready in a hot frying-pan a good lump of butter. When it hisses pour in your mixture gently and set over a clear fire. It should cook in eight or ten minutes at most. Do not stir, but contrive, as the eggs "set," to slip a broad-bladed knife under the omelet to guard against burning at the bottom. When done lay a hot dish, bottom upward, on top of the pan, and upset it and bring the browned side up. Eat soon or it will not be so light. A grand dish for breakfast.

CHLORIDE OF LIME AS A DISINFECTANT.—One pound requires three gallons of water; use the clear solution. To purify rooms, sprinkle on the floor, and, if needful, on the bed linen. Infected clothes should be dipped in it, and wrung out, just before they are washed. It purifies night commodes, water closets, &c. It may also be used in its pure state. For butcher stalls, fish markets, slaughter houses, sinks, and wherever there are offensive putrid gases, sprinkle it about, and in a few days the smell will pass away. If a cat, rat or mouse should die about the house, and send forth an offensive gas, place some chloride of lime in an open vessel near the place where the nuisance is, and it will soon purify the atmosphere. Chloride of lime in a room will cause iron or steel to rust rapidly.

TO CURE HABITUAL DRUNKENNESS.—The following singular means of curing habitual drunkenness is employed by Doctor Schreiber, a Russian physician. It consists in confining the drunkard in a room, and in furnishing him at discretion with his favorite spirit diluted with ¾ of water; as much wine, beer, and coffee as he desires, but containing ⅓ of spirit; all the food, the bread meat, and the vegetables steeped in spirit and water. The poor patient is continually drunk. On the fifth day of this treatment he has an extreme disgust for spirit; he earnestly requests other diet; but his desire must not be yielded to until he no longer desires to eat or drink; he is then certainly cured of his love of drink. He acquires such a disgust for brandy, or other spirits, that he is ready to vomit at the very sight of it.

PRECAUTIONS TO BE OBSERVED IN ENTERING A SICK ROOM.—Never enter fasting; if it is not convenient to take refreshment of the ordinary kind, take a glass of wine and a cracker. Do not stand between the patient and the door, if possible. Avoid sitting on or touching the bed clothes as much as possible, and do not inhale the patient's breath. The hands should always be washed in clean water, if the patient has fever, before leaving the room to touch other people or things. After visiting a fever patient, &c., change the dress, if possible. As soon as the fever is over, and the patient is convalescent, the dress which has been used by the nurse or attendant should be destroyed if there are no means of fumigation at hand, or it must be boiled in water to which carbolic acid has been added. The same must be done with bed clothes, &c., which have been used.

TREATMENT OF AN ATTACK OF APPOPLEXY.—Loosen the clothes, especially those about the throat and neck, and send at *once* for a physician. Meanwhile, remove the patient into a cool, well ventilated room, raise the head above the level of the body, and apply cold to the head either by means of rags dipped in water, never allowing them to become warm, or by ice in a bladder, &c. The diet will require great care when the patient is reviving. Only very small quantities of milk, beef tea, &c., must be given until he is able to digest more. Supposing the patient to recover from the fit, great care will be required to prevent a second attack. Strong medicines, great excitement, or mental occupation are to be avoided. The diet ought to be light but nutritious; milk is useful, taken to the extent of 1½ or 2 pints in a day; and, as a rule, no spirits or wine should be allowed.

LIVE STOCK.

Sheep Washing—The Best Way of Doing So

It is a question in the minds of many wool-growers as to the practical utility of washing the fleece while it is still upon the sheep's back. A deduction—usually one third—is made by the wool-buyers from the weight of all unwashed wool, and in most cases this is not far from the loss which the fleece would sustain in the process of washing, if it is done with the average amount of thoroughness. Nevertheless, the practice of washing the sheep is very general, and if there is no return in money for the labor of washing, there is the satisfaction of having cleaner wool to work with when shearing.

The common method of washing is to select some favorable place in a brook where the water is about three feet, the bottom hard and gravelly, and the current moderate, and then build a pen of rails sufficient to hold a large flock, and provided with a narrow opening towards the stream. Into this pen the sheep are driven through an opening, temporarily made for the purpose, at the rear. One man, perhaps aided by a boy, tends the flock and passes the sheep to the washers who are standing in the stream. The sheep should have been previously tagged and freed from all large soiled clots. The washing should not be done until the water has become so warm that the sheep may not be chilled and injured. Special care must be taken with old or sickly sheep, and ewes that are still with lamb. An exposure of the sheep to a warm rain the day previous to the washing is an advantage, as it softens and loosens the dirt and renders the washing easier and more thorough. As the sheep are washed they should pass out upon a clean, grassy slope that rises gradually from the stream, otherwise the water laden animals may fall and soil their fleeces. After washing, if the weather should suddenly turn cooler, the flock should be provided with shelter, to prevent their taking cold, as they would be very likely to do. From the time of washing to that of shearing, two weeks or so, the sheep should be kept in pasture that is free from any bare ground, overhanging banks or steep side-hills, so that the wool may be kept clean.

A second method of washing, which is employed when the stream is small but somewhat rapid, is to arrange a spout for the passage of the water, and hold the sheep under the end—the water flowing upon the animal. In this way the washer does not go into the stream, and if provided with rubber boots and apron, may keep himself comparatively dry. The washing by this method is very thorough, as there is a stream of clean water constantly flowing into and through the wool, and carrying off the impurities as they are removed from the sheep.—*American Agriculturist.*

Breed for a Purpose.

No horse is scarcer, or commands a better price, than the large, stylish coach or carriage horse. Every day at our auction marts we see plain-looking, undersized animals selling for a mere song, notwithstanding that they possess speed all the way from 2:50 to 2:30. One of our dealers tells us that he has orders for a matched team that he cannot procure, and one that he tried to buy in York State they asked $2,500 for. A correspondent writing from Nashville, Tenn., to a New York paper, says:

We hoped to find a pair of superior carriage horses here, but not a coacher could we find or hear of in this vicinity. Now this speaks in stronger language than we can use in favor of breeding the most profitable family of horses that can be bred—the carriage, coach, or park horse. Breed for speed if you will, but breed to size, so that in any event if no trotter the salable carriage horse. We will be met with the reply that "such heavy horses are not the animals for use on our hard macadamized pike;" very true. Breed as sagaciously as you may there will always be a sufficient number of under-sized horses for home use. In breeding don't mix up the different families.

Breed for a purpose. Let the dam and sire be good representatives of their class. Breed the draft mare to the draft horse; the highly-bred and finely-finished large bay mare to the park stallion. No matter if he is as grand a trotter as Blackwood, Jr. All the better, as to his grand appearance and fine size he adds remarkable speed, in fact breeding is condensed in a few words. Breed for what you want, remembering always that "like begets like." "Whatsoever a man soweth that shall he also reap."—*Afield and Afloat.*

Seasonable Items of Importance to the Farmer.

The effect of dipping sheep is to free them from all external parasites, as ticks, scab, etc., and skin diseases, the causes of some of which are not fully understood. A dip of 12 lbs. of tobacco and 6 lbs. of flour of sulphur, to 50 gallons of water, is one that has been so generally used, that it can be recommended. Some add to this a little concentrated lye, a pound or so, and about the same quantity of arsenic. If arsenic is used, proper caution should be exercised, and the poisonous nature of the mixture kept in mind. The sheep are to be dipped while the mixture is warm. Those who have had experience claim that the dip of tobacco and sulphur will do all that can be accomplished by the use of arsenic. It may not be generally understood that sulphur does not dissolve in the dip; hence, in order that each sheep may get its share, the mixture while in use should be frequently stirred up from the bottom, and the sulphur thus thoroughly diffused.—*American Agriculturist.*

Balky Horses.

Among the suggestions said to be published by some Anti-cruelty to Animals Society, are these: If the horse when he balks can have his attention diverted there is usually no trouble in starting him. This may be done in various ways, of which the following are a few that have been employed: Take the horse out of the shafts and turn him around several times rapidly. This will make him entirely dizzy and lead him to forget that he does not wish to draw the load. A stout twine twisted around the foreleg has been used as a remedy with good results. A string tied around the ear has the same effect. We have seen horses of the balkiest sort started in a moment by putting a lump of earth into their mouths. Even a piece of sugar or a handful of fresh grass will so divert the attention of the balker that he will often start off without trouble. Some mild treatment like these, that sets the animal to thinking of something foreign to his work, is vastly better than any amount of whipping, and is much easier of application.

How to Feed Shelled Corn.

When corn cannot be ground without too much expense the next best way is to mix the shelled corn with cut-short corn stalks; dampen the mass and let it lie a few hours, when the cattle will eat corn and stalks together, and masticate the corn much better than when in the cob. They are obliged to do this in masticating the corn fodder; besides in this case the corn will be raised with the cud and remasticated, thus giving it the benefit of a second grinding, which it does not have when corn is fed alone. This is a matter of great importance in feeding.

Don't Pare Away the Frog.

Some horseshoers seem to take a delight in paring away the frog of the horse's foot until there is hardly any of it left. This should never be allowed. The frog is placed there by nature to act as a cushion to protect the foot of the animal when he plants it suddenly on any hard substance, and should never be touched except to remove its ragged edges.

A Successful Sheep-Raiser

Informs the *Rural New Yorker* that he is careful in sheltering his stock from all storms in the fall, winter and spring. He feeds a daily ration of grain until the grass is sufficiently grown in the spring to afford ample pasture. He keeps the Cotswold and Merino breeds, feeds daily to each animal not over a half pint of corn, or corn and oats mixed, and finds that this treatment makes them fatten and keeps them in better health than animals receiving no grain.

Sheep Shearing.

Washing sheep under the present system of buying wool will, perhaps, be the prevailing practice. If care is taken to keep the sheep so that the wool will not be filled with dirt, it is better not to wash. Fleeces should be done up with care, nicely rolled and securely tied with light twine. When it is known that a farmer puts up his wool in neat shape without tags, etc., he will obtain the highest price. Everywhere, but especially here, "honesty is the best policy."

LITERARY AND PERSONAL.

We are in receipt of the *National Temperance Songster*, by W. O. Moffitt, and published by S. L. Marrow & Co., Indianapolis. 64 pages; price, 10 cents. It contains a collection of fresh, sparkling and original songs set to familiar music.

The Matrimonial Times.—Devoted to "love, courtship and marriage." Farmersville, (Lancaster county) June, 1880. This is a four-paged quarto (about the size of The Farmer,) No. 1, Vol. I., of which is now before us, but by whom edited and published, "deponent sayeth not." All matters relating to the objects of the paper "strictly confidential," and this, it appears, includes also the publishers' names. Not to know whom we are addressing, as a *medium* or a "go-between," upon such a grave subject as marriage, involving interests relating not only to our lives in this world, but also throughout the invisible realms, may be in harmony with the general *confidential* terms of the paper, and may also be suitable to those who prefer to "go it blind," but it can hardly be acceptable to those who desire to act intelligently and legitimately. Still, this is a spicy little sheet, neatly gotten up, and contains some amusing flashes of wit, wisdom and anecdote; and if marriage is only a "funny thing," there may be a "vacancy" for it in the community. There *may* be a moral plane of society wherein such a journal might be useful, or at least be *permissible* as a necessity, but we should rather deplore such a plane than recommend a resort to such an ambiguous remedy against the domestic inconvenience of celibacy.

Premium List Abstract, Department 2.—Twenty-seventh annual exhibition of the Pennsylvania State Agricultural Society, to be held in the Main Centennial Building, Fairmount Park, Philadelphia, September 6th to 18th, 1880. List of premiums under group 13, vegetables; group 14, fruits; and group 15, flowers and ornamental plants. The complete list of premiums under all the groups will be published at an early day; 12 pages royal octavo, on fine tinted paper. We noticed abstract No. 1, including the premiums on stock, in our last number, and the present list is a liberal continuation of the general subject. We rather approve this division of the subjects into departments, as it seems more convenient to specialists than the consultation of a larger list, including matter in which they take no interest. Of course, the State fair, under its present auspices, will be a success; indeed, it could not well be otherwise, unless its conductors should prove to be entirely incompetent, which from their long experience in such matters does not seem at all likely. Committees of co operation of the Pennsylvania Horticultural Society and the Pennsylvania Fruit-Growers' Society, have approved the lists of groups of 14 and 15, and these groups will be under the supervision of committees appointed by those societies, which will be efficient auxiliaries in their specialties.

Report on the Cotton Insects, prepared under the direction of the Commissioner of Agriculture, in pursuance of an act of Congress, approved June 19th, 1878, by J. Henry Comstock, Entomologist of the Department of Agriculture, Washington, D. C. Published by the Government. This is a well executed royal octavo of 511 pages, very elaborately illustrated and devoted almost exclusively to the history, habits and modes of circumventing the depredations of the "Cotton-Worm," (*Aletia argaiacea,*) and the "Boll-Worm," (*Heliothis armigera,*) two lepidopterous insects that for many years have been depredating upon the cotton fields of the Southern States. If thorough observation, minute details and implemental illustrations, together with natural and artificial remedies, can be made available in the extinguishment of the cotton worms, then surely the Department of Agriculture—through its entomologist—has done all that can be expected of it in the publication of this treatise. But the multiplication of publications upon the subject will amount to but little, unless the people *read them* and make an intelligent application of the principles they illustrate. This work also contains a learned treatise on "Nectar; what it is, and some of its uses," by William Trelease, with a plate of microscopic illustrations, and two appendices, containing a very large number of local observations, made in a multitude of places within the great cotton region; ending with a copious index to the whole. Our obligations are due to Prof. J. Henry Comstock, Entomologist of the Department, for an advance copy of this very creditable work. In conclusion we may say that the publications of the department, in quality and typography, are far in advance of what they were some years ago.

Dairy Farming—Being the theory, practice and methods of dairy farming, by J. P. Sheldon, assisted by leading authorities in various countries. Published by Cassell, Petter, Galpin & Co. London, Paris and New York, at 40 cents per part. We have received parts 10 and 11 of this beautiful quarto, and have no hesitancy in saying that it stands at the head of dairy publications in this or any other country in the world. Each part—consisting of 24 double column pages—is illustrated with a full page colored plate, and numerous finely executed wood cuts. The paper and letter-press is of the very best, and the literary contents are of the highest ability accessible on the subjects to which it is devoted. Part 10 contains colored illustrations of 13 species of "weed grasses and parasites," giving both their scientific and common names, so that the series will contain a highly useful system of dairy botany. The article on "Cheese-Making" in this number is exhaustive and very minute in its details, embracing everything relating to the subject, from the herbage in the field to the manufacture in the market. The colored plate in part 11 illustrates five varieties of long-horn cattle, and the letter-press includes the continuation of a chapter, commenced in No. 10, on "Cheddar and Cheshire Cheese," with a portrait of Mr. Joseph Harding, a writer, lecturer on, and identified with the Cheddar system, embellished with twenty excellent wood-cut illustrations, and a full page ground-plan of a *Cheshire dairy premises*. No. 11 also includes the greater part of an illustrated chapter on Derbyshire, Gloucester, Stilton and other British cheeses, with both primitive and improved methods, presses, apparatus, &c., &c.; indeed there seems to be nothing worth knowing and of a practical character about dairying and cheese-making that is not reflected from the pages of this journal, and hence that it must necessarily be as essential to intelligent butter and cheese-making as a dictionary is to a successful editor and teacher.

Kansas State Board of Agriculture—First Quarterly Report for 1880.—The first quarterly report of the Kansas State Board of Agriculture is a volume of 120 pages. The statistical matter consists of valuable tables, giving, by counties, the value *per capita* of products of the farm for 1879, real value of assessed property *per capita*, 1879, tax on each $100, of assessed valuation, number of school districts, number of school houses, number of teachers, average wages and value of school buildings and grounds in each county; the acreage of corn and wheat to the square mile ranked by counties for 1879, and the area in square miles of each county; also products of the farm and population, for 1879, ranked by counties. The prospects for fruit, in each county, are given also; condition of winter wheat, amount reported winter-killed, or injured from lack of rain, that in the best condition, drilled or broadcast, and varieties sown. This information is given by counties, preceded by a table showing number of acres and value, together with increase and decrease each year from 1874 to 1880. The condition of rye crop is given by counties, reports as to the value of spring wheat, barley, oats, flax, buckwheat, corn, sorghum, castor beans, broom corn, millet and Hungarian, cotton, hemp and tobacco, together with tabulated statements of increase and decrease of crop in acres and value from 1874 to 1880, giving varieties grown, price of seed March 1, 1800, and other important general facts. Information upon the potato crop is given by counties, varieties grown, time of planting, methods adopted, and market price of seed per bushel March 1, 1880. The reports on tame grasses are instructive as showing the counties in which they are successfully grown, time and method of sowing seed, etc. Recommended varieties of fruit, vines, forest and ornamental trees are given; also, summary condition of farm animals and bees, time of breaking prairie, etc. The meteorological data is compiled for the months of January, February and March, for different stations reporting to the Board.

The special feature of this quarterly, is the extended manual on Swine Husbandry, giving the practical experience of swine breeders for every county, and valuable facts concerning the treatment, breeding and cost of raising pork for market, together with many and varied suggestions for the profitable care and management of swine. The quarterly report may be had by applying to the Secretary of the Board, J. K. Hudson, Topeka, Kansas.

MISCELLANEOUS.

The Fruit Evaporator.

Within a few years the evaporation of fruit by improved processes, under the stimulus of the current high prices for the product, has received much attention. American evaporated fruits have gained a great reputation in Europe, and now constitute an important item in commerce. The demand, market and price within the last year has added new interest and importance to the business.

Perhaps the most significant fact in this connection is, that simpler and cheaper, yet philosophical evaporators have been constructed, and are now going into use as an auxillary to the farmer and orchardist. Fruit growers should closely investigate and turn to account upon their own premises much, if not all, of the fruit that usually goes to waste or is sold at unremunerative prices. The fact that raisins are sold here for 10 cents per pound, after a carriage of thousands of miles, and evaporated pared peaches is worth 25 to 30 cents per pound, suggests at least investigation.

Seeds and Plants.

We would call the attention of those of our readers who contemplate purchasing seeds or plants during the coming season, to the advertisement of Peter Henderson & Co., New York, now appearing in our columns. Peter Henderson, the senior member of the firm, is known far and wide as a horticultural writer and authority. His books, "Gardening for Profit," "Practical Floriculture," and "Gardening for Pleasure," are now in the hands of thousands. The green-house establishment of his firm covers three acres in green-houses and employs upwards of fifty hands. Millions of plants are shipped by mail or express annually to every State and Territory. Their seed warehouse is the most extensive in the city of New York, and every order received is certain to be filled with goods of the best quality, and as they are producers as well as dealers, "everything for the garden" will be sold at low rates. Feb-3m

"Bo-Peep"

This exquisitely wrought steel plate engraving, by the well-known artist, J. A. J. Wilcox, from a painting by that world famous German artist, Meyer Von Bremen, is one of the most beautiful and artistic engravings ever published. A mother and her child are away from the dusty town for an afternoon's recreating in the "Sylvan Wild" of Germany; golden pages are added to life's book of "Happy Hours." It is a genuine steel engraving, and so excellent in subject and body that its possessor can never outgrow it—become he or she however æsthetic in art. Printed on 22x28 paper. Price $3 00. Published by R. H. Curran & Co., 22 School street, Boston, Mass. Apr-1t.

The Cooley Creamer.

This method of "deep-setting of milk" is coming into so general use, that at the recent dairy fair in New York, it was not shown as a "novelty," but took its place as a common and indispensable adjunct to the dairy. With a Cooley Creamer a dairyman is entirely independent of the weather, and his product is uniform at all times. It is in this, as well as in its convenience, that the Cooley process of setting milk commends itself to all who make butter.

From our foreign exchanges we infer that it has been quite extensively introduced into use in Great Britain.—*Albany Country Gentleman.* Feb-4m.

Inventors, Take Notice.

To any of the readers of THE FARMER who desire a patent we would refer them to William R. Gerhart, Solicitor of Patents, at No. 34 North Duke street, (2d floor) Lancaster, Pa. He has opened communication with the Patent Office, at Washington, and is prepared to push claims with promptness and dispatch. Apr-1m

Ballard, Branch & Co.

In another column will be found the advertisement of Ballard, Branch & Co. Apr-1t

A HOME ORGAN FOR FARMERS.

THE LANCASTER FARMER,

A MONTHLY JOURNAL,

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Founded Under the Auspices of the Lancaster County Agricultural and Horticultural Society.

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 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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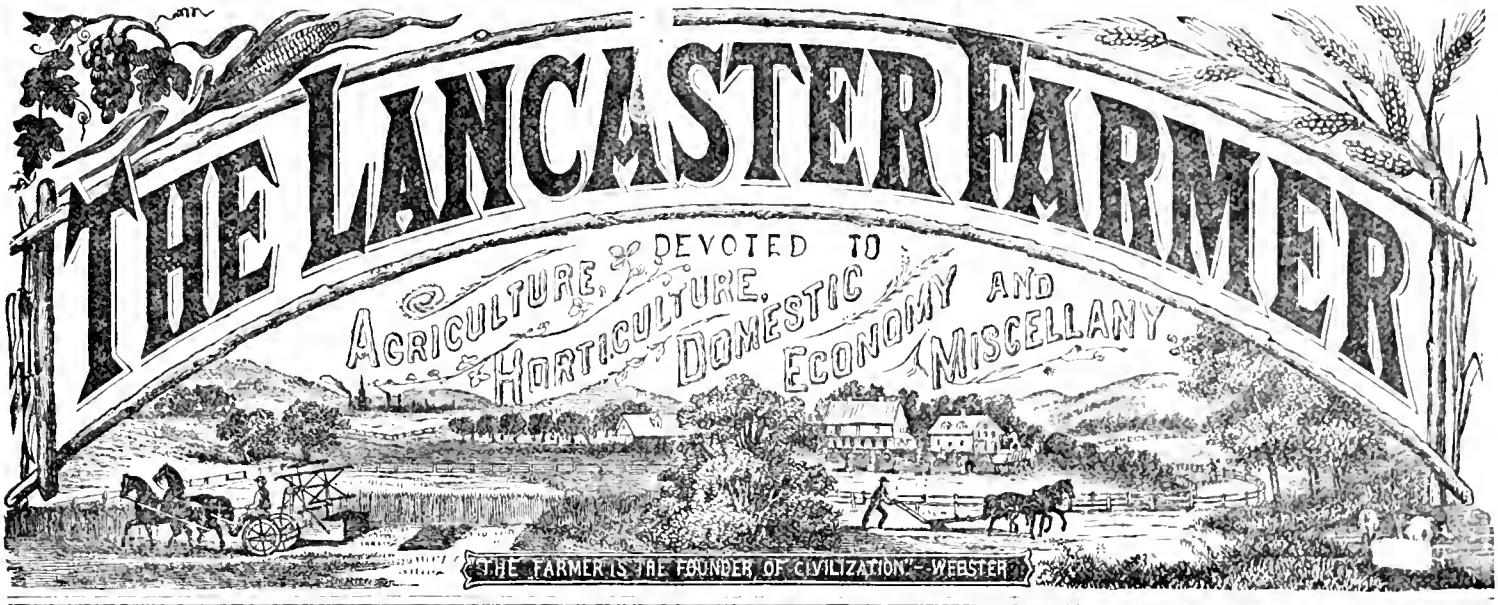

Dr. S. S. RATHVON, Editor. LANCASTER, PA., JULY, 1880 JOHN A. HIESTAND, Publisher.

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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	10:05 a. m.	11:20 a. m.
Hanover Accommodation	10:10 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy	11:05 a. m.	12:40 p. m.
No. 2 via Columbia	11:07 a. m.	12:55 p. m.
Sunday Mail	10:50 a. m.	12:40 p. m.
Fast Line*	2:10 p. m.	3:25 p. m.
Frederick Accommodation	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom	5:45 p. m.	7:40 p. m.
Columbia Accommodation	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express	7:25 p. m.	8:40 p. m.
Fittsburg Express	8:50 p. m.	10:10 p. m.
Cincinnati Express*	11:30 p. m.	12:45 a. m.

EASTWARD.	Lancaster.	Philadelphia.
Atlantic Express*	12:25 a. m.	3:00 a. m.
Philadelphia Express†	4:10 a. m.	7:00 a. m.
Fast Line*	5:20 a. m.	7:40 a. m.
Harrisburg Express	7:35 a. m.	10:00 a. m.
Columbia Accommodation	9.10 p. m.	12:0 p. m.
Pacihe Express*	1:25 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*	5:20 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.

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

*The only trains which run daily.

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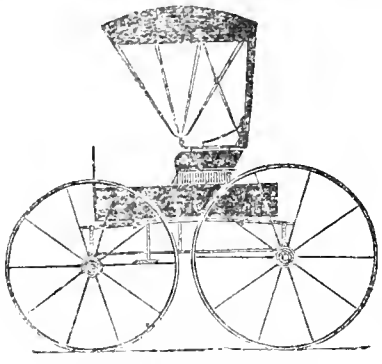

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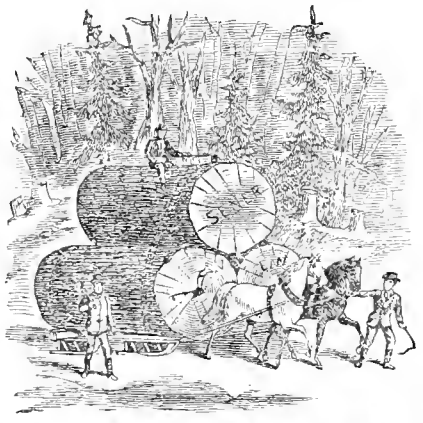

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LANCASTER, PA.

Nov-1y

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor. LANCASTER, PA., JULY, 1880. Vol. XII. No. 7.

EDITORIAL.

OUR DOMESTIC PROGRESS.

It is rather an unusal occurrence to have a simultaneous hay and grain harvest in Lancaster county, but it has been very generally so the present season. But this does not cause the same perplexity and anxiety now that it would have done in the long past, when the labor-saving machines and farm implements were more simple and inefficient than they are at the present time, and when laborers were not so readily obtained. We were never more deeply impressed with the efficiency of this machine work than we were on a visit to a harvest field on the 25th of June last, and saw one of the McCORMICK Reapers and Binders in active operation. A single man and a boy, operating one of these machines, did more work in the same time, than twenty men could have done under the old system of harvesting. In the same field two men with a four-horse team and wagon, carried it off to the mow, or stack, as fast as it was cut, saving all the labor of gathering, shocking and exposure to weather vicisitudes.

After all the anxieties and discussions about the army worm, it does not seem to have done much damage in Lancaster county, or even in the State of Pennsylvania the present season; and, although *possible*, yet it is not probable that it ever will. The present season it was almost entirely circumvented by the rapid ripening of the grain and grass. The oats and corn being later crops might possibly be more exposed to the depredations of these pests, but fortunately here again, they are circumvented by the limitations of their own development. As early as the 28th of June they began to retire into the ground to pupate, and by the time we go to press, there may not be one visible in Lancaster county. Still, it would do no harm for farmers to trap the moths during the present month, and thus diminish what liability may exist of their return next spring and early summer. On the whole, the outlook is a fair one, and the growing condition of corn, tobacco and other crops seems as favorable as the heart of the farmer can desire. Improved tillage, and stimulations to rapid growth and maturity, will forestall the enemies of vegetation. We noticed a cornfield in which the corn absolutely grew faster during the day, than the army worms could consume it during the night.

The circumvention of the enemies of the fruit and foliage of our trees, seems to be a more difficult problem, and complaints against the *curculio*, the codling and other pests are multiplying. Of course the tobacco cultivators have their hands full, and this will probably continue so until the crop is gathered. We never can expect an immunity from the attacks of noxious insects. They are a "part and parcel" of the animal kingdom, and will continue so long as the causes that brought them into existence continues. There is no visible or outwardly developed evil in existence that had not first been an inward and undeveloped or unborn evil. Animals are said to become extinguished or extinct; but if we knew the latent and unseen causes of things, it perhaps would become manifest that the fundamental principles from which they were the correspondential outbirths had first become extinguished. We may, therefore, expect to have insects always with us until the atmospheres—moral and physical—around us become intolerable to insect life. This may be only partially supplied by artificial remedies, involving prevention, expulsion or extinction.

For nearly forty years the people in the great West have suffered from the depredations of the "Colorado Potato Beetle" which rapidly increased and extended its area, because the conditions for its increase and extension increased. But now it does not cause the anxiety or terror it did at first, because the people have become better acquainted with its history and have learned to apply the counteracting forces against its increase. It may be a long time yet before it becomes extinct. This is the case with all noxious insects, and therefore we must continue to make provision for thier presence, as we do for every other evil. If we are vigilant, we shall, perhaps, always produce sufficient for our wants, insects or no insects; but we must continue to earn and "eat our bread by the sweat of our faces." If things were more "lovely" for us, perhaps *we* would be less "lovely"—less humble. These drawbacks to our prosperity, if we make the right use of them, may only be the necessary stimulants to our onward progress. If things were otherwise we might begin to make gods of ourselves, and cease to recognize any co-operative power beyond our own individual energies. Every successful effort is the result of *co-operation*.

OUR LOCAL FAIR.

Our readers will have observed that in the last number of the *Farmer* we published the premium list of our approaching exhibition. This we did in order that they might have it constantly with them, and also for future reference. Since then 3,000 copies in pamphlet form have been distributed throughout the county, and elsewhere. A few copies will be kept on hand, so that any person desiring one, can obtain it by calling upon, or sending to the editor of the *Farmer*.

The most liberal and enlarged efforts are being made to hold fairs the coming fall, all over our vast country, State, district, and local. Three notable ones will be held at BISMARK GROVE, Kansas; CINCINNATI, Ohio, and FAIRMOUNT PARK, Philadelphia.

The county fairs already announced, are a formidable list. The people everywhere seem determined not to be absorbed by those mammoth concerns, but to hold their local exhibitions for the gratification and instruction of the local population, and we think the people of Pennsylvania are wise in this resolve. There are tens and hundreds of thousands of the people, who cannot, or will not, go so very far to attend a fair, but would cheerfully spend a day attending one in their own county, and these people have as good a right to be entertained with pleasant sights as those who choose to go afar. But there are many people who are not satisfied with being only entertained themselves, but desire to contribute towards the entertainment of others. These especially should carefully consult the premium list in order to obtain an intelligent view of the whole question. They may find some items in it that will be eminently suitable to their individual cases. They may not only experience the delight of carrying off one or more of the permiums, but also the additional delight of having delighted others. The question should not be merely 'what satisfaction may I derive from the fair,' but what satisfaction may I give to others?"

SWALLOWS AS FARMERS' FRIENDS.

"A well-known naturalist, M. Florent-Prevort, who has been engaged for a series of years in making observations on the contents of the stomachs of various insectivorous birds, recently communicated to the French Senate the following interesting details in the food of swallows. He examined with the utmost care the stomach-contents of eighteen of these birds, which he captured for that purpose at different periods of the season, with the results here appended: In the stomach of a swallow killed on April 15, he found 422 insects; April 19, 619 insects; April 27, 301 insects; May 1, 701 insects; May 4, 660 insects; May 18, 680 insects; May 29, 300 insects; June 3, 420 insects; June 14, 244 insects; June 28, 400 insects; July 11, 420 insects; July 20, 501 insects; July 29, 500 insects; August 5, 742 insects; August 19, 600 insects; and August 29, 384 insects. The eighteen birds together, therefore, devoured no less than 8,390 insects, which were recovered undigested, or at the rate of 466 each per diem; and it must be remembered that these probably represent but a small portion of the total number they had eaten during the day. When we reflect that among all this mass of indigested insects there was not a single grain of corn, (of any kind) or ,the least particle of fruit, or a trace of any vegetable *debris*, we have some slight conception of the invaluable services which these little creatures render to agriculturists and fruit-growers." - *Farmer*.

Basing our calculations upon the above experiments, which were made in France, we reach the following results. The swallow does not appear as early in Pennsylvania as it does, perhaps, in France, nor yet remain so long with us, but say from the 1st of May to the 1st of September, a period of 123 days. If, therefore, one bird averages 466 insects as its daily supply of food, in 123 days it will have consumed 57,318 insects, but it is very probable it consumes twice that number. For a family of *eighteen* swallows this would foot up 458,544 during the season, but we have seen families consisting of hundreds of these birds, whose destruction of insects during the four months they remain with us, must amount to millions. We offer the above quotations from that excellent English publication—*The Journal of Forestry*—as a sequel to our article on the swallow in the June number of THE LANCASTER FARMER.

SCIENTIFIC.

NUTRITIVE VALUE OF GRASS AT VARIOUS STAGES OF GROWTH.—E. Von Wolff and others cut grass three times in the early summer, in the years 1874 and 1877: the first cutting took place about the middle of May, the second at the beginning, and the third at the end of June. The second cutting appeared to give the best results in the case of animals experimented upon, namely sheep and horses; and, as a rule, it was found that more nitrogenous matter was excreted by the latter than by the former."

The foregoing which we cull from "General Notes," in SCIENCE, is a matter of interest to farmers: but it would have been more valuable, if it had stated what particular species of "grass" had been experimented with; for the term *grass* is used by farmers generally to cover everything that is not included with *grain*. Between the cutting of clover and timothy, farmers often make a difference of two weeks at least. This subject has on several occasions been discussed by our local society, in which it was alleged that clover cut too early or too late, lost much of its nutritious quality, and this seems highly probable. This experiment is an exceeding simple one, and it appears to us might easily be removed from the category of disscussion, by any one not restricted to "set times," under ancestral traditions.

"THE EFFECT OF CARBONIC ACID IN THE AIR UPON CROPS.—According to M. Marie Davy, an examination of the determinations of the amount of Carbonic anhydride in the

air, which have been made daily during the last four years at Montsouris, seems to show that the best crops have been produced in those years when the amount of carbonic anhydride has been below the average. The carbonic anhydride varies inversely with clearness of the sky, and is influenced by the oscillations of the great equatorial atmospheric currents." *Ibid.*

As an anhydrous element contains no water, of course the less of it in the atmosphere the better it will be for those crops at least, which require the most moisture. Inasmuch as carbon is so essential to the growth of vegetation, it is a satisfaction to know that the variation is inverse and not adverse, when the sky is clear; or perhaps we might be unduly longing after clouded skies as the greatest stimulant to growth. It is well there is a great equatorial current of atmosphere, which by its oscillations can influence the *quantum* of carbonic anhydride in the air; because, it is one of those phenomena in nature, that is entirely beyond human control.

NEW FRUIT.

We have received (just *when* we cannot tell, for we were not aware of its presence until this "glorious 4th," (5) when in rummaging a pile of papers, it turned up) an envelope containing two cards of beautifully illustrated fruit, and we feel some self reproach that they have not been formally recognized months ago; for, in the very nature of the case it must have been months ago that they were sent to us. If we were entirely oblivous of the *when* we cannot be mistaken in the *who*, for they bear the superscription of B. G. CHASE & Co, GENEVA, N. Y. One is the "*Queen of the Market Raspberry*"—"Plant, a vigorous grower, attaining a height of five or six feet, very productive and perfectly hardy. Berry largest size, red in color, best quality and carries well, keeping in salable condition several days."

The other is "*Kieffer's Hybrid Pear*," believed to be absolutely exempt from blight." "This remarkable pear was raised from the seed of a blight-proof Chinese sand pear, supposed to be crossed with Bartlett.

The original tree, now twelve years from seed, has not failed to give a good crop each year for some years, yielding over seven bushels of fine fruit in 1879. It still stands near Philadelphia, "*a model for form, beauty, and productiveness.*" Trees two and three years old from bud have borne specimens weighing from ten to eighteen ounces. The flesh is white, rich, aromatic and juicy. In season October and November.

Thomas Meehan says: "I regard it one of the most remarkable productions of the age."

Edwin Satterthwait says: "There is not a doubt in my mind but what it is blight proof

The *American Agriculturist* says: "We have not in a long time seen a fruit that appears to unite so many elements of popularity as "Kieffer's Hybrid."

We personally do not know enough about the fruit to endorse it, but we have no hesitancy in endorsing the men who *do* endorse it, and can assure our readers, not only of the competency of their judgment, but also its righteousness—but, try it yourselves, at the proper time.

THE ELM-LEAF BEETLE.

We do not like to sound a false or unnecessary alarm, but we fear that many of the finest elm trees of the city of Lancaster will have ultimately to fall victims to the pestiferous attacks of this persevering and incorrigible pest, for they are present again in greatly increased numbers, and some of our citizens despair of saving their trees. We cannot say exactly that this is their own faults, for when a number of very large trees become seriously infested by them from the lowermost to the topmost branches, it would be a herculean labor to apply a remedy for their destruction, no matter how effective it might be, where they are easily accessible. Spraying the trees with liquid Paris Green, or London Purple, would prove an effectual extinguisher, but it would require a reservoir of it and a steam engine to drench a dozen of trees of from forty to fifty feet in height, and really there would seem to be no other way but to cut them down. The "Elm-leaf Beetle" (*Galeruca xanthomelena*) first appeared on the trees in Lancaster city in the summer of 1876, and ever since then they have been gradually increasing. In 1878 they were very bad, and in 1879 much worse. It is true, no great vigilance was observed, and very little energy manifested in their destruction. For the most part, people looked on them with a vacant gaze, wondering where in the world they came from, where they would go to, and what would be the end of them. When trees stand where there is no grass or rubbish at the base, but a pavement or hard, smooth earth instead, the great bulk of these insects could be easily destroyed when the larvæ come down off the trees to pupate, but they do not all come down, for many of them pupate in the crevices of the rough bark on the trunk and larger branches. But with a stiff brush—such as is used in cleaning out gutters—and a wash of stong whale oil soap, or an alkali, these could be crushed, dislodged and destroyed. In our walks through the city, in 1878, we saw places where two or three quarts of the pupæ of these insects could have been gathered from the base of a single large tree during the season. Some of them, it is presumable, were swept together and destroyed about once a day, but many were only swept into crevices between the bricks of the pavement, or other safe retreats, where they remained safe from subsequent molestation until they had changed to beetles. The pupæ are very conspicuous and also very accessible, for they are then quiescent and of lemon yellow color. The beetles are of a clay color, with a dark stripe on each wing-cover, and about half or three-eighths of an inch in length. These have ample wings and do not remain long where they evolve from the pupæ, but fly off and settle upon the foliage of the trees, to go through the process of another brood. Doubtless many of the second brood perish simply because the trees have been so denuded by the first brood that they do not find sufficient food for their development, but what *do* mature pass their winter hibernation in any convenient place they can find. In the city many get into stables, outhouses, or even into mansions.

These insects are a foreign importation, and first appeared near Baltimore about sixty years ago, and on that occasion all the elm trees in a park had to be cut down before their progress could arrested. This, it appears, was also the case in a certain locality in Massachusetts, and it may be the case here, unless a more systematic effort to destroy them is made than has obtained heretofore, or their career is brought to an end through the intervention of some meteorological or climatic phenomenon independent of human effort.

QUERIES AND ANSWERS.

WATER-BEETLE.

ALEXANDRIA, Huntingdon Co., Pa., July 6, 1880.

S. S. RATHVON—*Dear Sir:* I enclose water-beetle found to-day in the Juniata river. It was fastened to the body of a dead fish when caught, and afterward when thrown into a bucket containing minnows it attached to a wounded one, and to all appearances made a meal of it. Will you please drop me a line, giving the name and habits of the animal? This is the second one that has been caught here this summer, and no one can tell what it is.—*Yours truly, J. M. Porter.*

Your insect came to hand, and is a noted predaceous "water beetle," (*Cybister fimbrialatus*, known, both in America and Europe, to be destructive to fish in fish-ponds; but the larva is still more destructive than the perfect insect. If you are a deciple of Isaac Walton, and delight in piscatorial sports, we would advise you to kill these Beetles and their cogeners wherever you may meet them.

CHRYSOCHUS AURATUS.

QUARRYVILLE, July 6, 1880.

DR. S. S. RATHVON—*Sir:* I send you a very nice bug that was picked up here this morning. If you think it worth taking care of you can do so; if not, you can make what disposition of it you please. If not too much trouble please answer through the *Intelligencer.*—*Yours truly, R. C. Edwards.*

Your "bug" came duly to hand, and is a most brilliant specimen. It is the *Chrysochus Auratus*, the "Golden Green Lady-bird," and is a no very remote relative of the Colorado potato beetle, belonging to the same family (CHRYSOMELIDÆ,) but has never occurred very abundantly so far North as this, nor has it any preference for the potato.

ENTOMOLOGICAL.

PROTECTION AGAINST MOTHS.

It is often said, that "every little helps," and if that little is judiciously applied, the help derived from it would doubtless be greater than if applied without "just judgment." The following batch of remedies which we have culled from various sources we present for what they may be worth to our readers, after they have tested them experimentally. Even after we test a remedy we may be mistaken as to the effect, mainly on account of having mistaken the cause, or conditions contingent to it. But, let our excerpts speak for themselves:

Some of the newspapers at this season of the year are fond of publishing receipes for protecting clothing from moths. The favorite plans always involve the theory that the moth-fly can be kept away by a bad smell, and persons who have tender noses sometimes prefer the chances that the moths will do harm to the certainty that their houses will be filled with an unpleasant odor. There is a simple, cheap and easy plan for defeating the moths, that is effective and inoffensive. The moth-fly was never born that could penetrate a common newspaper. A woolen garment wrapped carefully in a newspaper, so that there will be no openings, is as safe from moths as if it were buried six feet deep in camphor, tar-paper, and petroleum.—*Philadelphia Bulletin.*

"All right" no doubt, provided no moth's eggs have been deposited on the garment before it had been inclosed. A better plan is to make paper *bags* of different sizes. Bags of *manilla* paper are kept for sale, and don't cost much.

Professor A. J. Cook, of Michigan Agricultural College, says he has found "London Purple" very effective as a poison for the potato bug. One pound is sufficient for 100 gallons of water. For such insects as canker-worms, leaf-rollers, in fact all leaf-eating insects, it is very efficacious. It is more diffusive than Paris green, and so needs less stirring to keep it well mixed with water.

Carbolic Acid soap is recommended as an excellent preventive for flies. If rubbed on the legs and neck of a horse he will not be troubled with flies.

These remedies may be good so far as they go, but there is one worm not mentioned (the army-worm (which might not fall under it unless the dose was very strong—strong enough perhaps to kill the leaves or plants. Within the month of June we visited a cornfield near Lancaster, on the farm of Mr. S. S. Spencer, infested by these worms. Mr. S. had administered Paris green, strong enough to burn the plants without any apparent good effect. Thinking the green may not have reached the worms, we took some of them and put them into a tin bucket containing a mixture of Paris green and gypsum, strong enough to kill the Colorado potato beetles, but the army-worms did not seem to mind it—indeed, at first they burrowed into it. They, however, did not seem to like it much and made an attempt to get out of the vessel containing it. We pushed them back and burried them in the powder, but for a full half hour they returned to the sides of the vessel and tried to get out, but the sides being covered with the granular contents of the bucket, they lost their hold and fell back. They can easily ascend the sides of a board or paper box, but they cannot ascend a loose granular surface, and this increased our confidence in a furrow trench with a perpendicular side.

How the Army Worm was Circumvented in Harford County.

Messrs. Editors: We notice in *The Sun* of to-day that a gentlemen in Kent county, Md., has saved his crop of wheat and corn from the ravages of the army worm by the use of salt sprinkled in a ditch dug eighteen inches deep. Had Kent county been visited by as large an army as we had, this remedy would have proved very expensive, and, we think, ineffectual. Our ditches are made concave in shape, and are only six to eight inches deep, with pits, holding from one to two bushels each, dug about every fifty feet. All of this is done at a comparatively small cost, and the worms concentrating in the pits can be destroyed by the use of coal oil, which is less expensive than the salt. The ditch, by this means, is kept clean of dead worms, which, if allowed to accumulate, would prove a bridge for others to pass over. Our method has proved effectual in saving nearly two hundred acres of our Egyptian sweet corn, and has been successful wherever tried.

The farmers highly appreciate the interest *The Sun* has taken to give information regarding the army worm. We have received letters from persons in this and other States who have read the accounts in *The Sun*, and who desire further information regarding the extent of the ravages and the progress of the worms. To all interested we are glad to report that the army worm has almost entirely disappeared from this vicinity, large numbers having died in the wheat fields. Anxiety on the subject is therefore abated. Truly yours,

S. N. Hyde & Son.

Boothby Hill, Harford co., Md., June 16, 1880.

Our farmers in Lancaster county who have tried the ditch, are entirely satisfied with it, as the best and cheapest plan to capture the worms, so long as it is not spoiled by heavy rains. Some make perpendicular holes ten or fifteen feet apart. After the worms are trapped they can be killed by various means.

The following from Prof. Comstock, Entomologist of the Department of Agriculture at Washington, according to the testimony of some experimenters is not conclusive, so far as rolling is concerned. They say the inequalities of the surface, and the heavy straw of grass or grain protects many from destruction.

How to Destroy Army Worms.

In case the worms do appear in cultivated lands the best plan of action to follow is to prevent the spreading of the insect. This may be done by destroying them or by confining them to the fields in which they appear. The best method of destroying them is by crushing with rollers, or by poisoning with arsenic, Paris green, or London purple. Either of these substances can be applied rapidly by mixing with water and using a fountain pump or garden syringe. In many instances, however, these remedies are impracticable. The second line of defense remains, and if well carried out the result will not merely be the confining of the worms to the fields in which they appear, but the destruction of them also when they attempt to migrate to other fields. This is done by the means of ditches and pits dug around the infested field or that to be protected. The ditches can be made quite rapidly. First plough a furrow with the "land side" next to the field to be protected, and then with a spade make this side of the furrow vertical, or if the soil be compact enough to admit of it, overhanging. When the ditch is completed, holes should be dug in it from one foot to 18 inches deep and from twenty to thirty feet apart. The sides of these holes should also be vertical, or if possible overhanging. The worms, unable to climb up the vertiele side of the ditch will crawl along the bottom of it and fall into the holes, where they will soon perish. Where the soil is sandy, so that the ditch cannot be with a vertical side, it should be dug deeper than in any other cases and the side made as nearly perpendicular as possible, so that when the worms attempt to crawl up, the sand will crumble beneath them and cause them to fall back again.

J. Henry Comstock,
Entomologist, Department of Agriculture.

A Reply from Secretary Edge, of the State Board of Agriculture.

In answer to some inquiries from Chester county about the army worm, Thomas J. Edge, Secretary of the State Board of Agriculture says:

I have received several specimens (some of them from Chester county) of what has been styled the "army worm," but thus far have had none of the true army worm of the West. Thus far all the specimens sent have been the now common *timothy worm*, which we have known in Chester county from boyhood. I am not prepared to say that the true army worm has not been found in Chester county, but if so I have not yet seen it there. The *cut worm* family has a large number of members, any one of which, if existing in sufficient numbers, is capable of doing all the damage attributed to the "army worm;" and under peculiar and local causes and circumstances *any one* of these many families may increase so rapidly as to cause great damage. It seems to be a law of nature that after mild winters we have heavy losses from insect enemies. Every few years it would seem that some one of the many classes of insect enemies obtain an advantage and for a short time do much damage, but this seldom lasts more than two seasons at most. All of our insect pests have their special enemies, which keep them in check. But as was the case with the "oat midge" a few years ago, these enemies fail to perform their mission for a year or two, and we have to record a loss like that of the present season. From what I can hear I am inclined to think that at least two members of the "cut-worm" family have been at work in Chester county during the present season—neither of them, however, new to entomologists—and if the same local causes exist next season we will probably hear from them again.

The "Timothy Worm" is also a *Leucania*, and *when* it occurs abundantly, does as much injury as the *unipuncta*, but we never knew it to be general, although we have known of both these worms in this county for twenty years.

Whether they are identical with those that infested the wheat in this county, I hope to demonstrate before the season ends, as I have both of them now in pupation.

What a Western Man Knows About It.

Wade H. Brown, of Radnor, Delaware county, gives some facts concerning the army worm, coupled with the experience he has had with them in the State of Missouri for many years. "In the first place, says Brown, "farmers in this section of the country need not fear the worm, so far as the early crops are concerned. The worm's birthplace is generally in places where grass, hay or leaves are left to decay, in and around rotten wood, fence corners and waste places, but he is never known to appear on a well kept farm, where there is nothing favorable to its birth, such as leaves blown together and there left to rot, and the other inducements above recorded. For a good production of this worm, there must be an open and favorable winter—similar to our last one—which is no doubt the cause of their being so numerous in this section of the country at present. After open winters, he said, you may prepare for the army worm. If we have a hard winter there is no need of fearing him. Where there are warm beds of rubbish, there you may expect to find him.

The worm, he informs us, cannot possibly hurt the wheat crop here this year, from the fact that the wheat already has the rust badly, and as the worm only eats the blades and seldom or never touches the stalk, the consequence is that the blades, when rusty, injure the stalk, and when eaten by the worm, is an advantage rather than an injury to the wheat proper. As to the hay crop, Mr. Brown says that the farmers need not worry over it. To go right to work and cut the grass is the proper way to get rid of the worm and thus thwart his efforts at destruction. In most places the hay is ready for cutting and hauling in. The oats crop is now all the worm has to invade, but our informant states that it can easily be cheated out of this luxury in the following manner: The worm cannot climb broken earth, and to plough a furrow around a field of oats will soon settle the question. He says the worm is the most clumsy, ignorant and easily beaten of any he has ever seen. It appears earlier in the West than it does in the East, but the farmers of the State of Missouri are thoroughly acquainted with it, and there is little or no fear manifested by them.

Mr. Brown says he has seen them invade a cornfield on two sides, but finding the corn of considerable growth and quite old, leave it without doing any damage. The worm only eats young plants, that which is full of life-giving substance. The corn crop this season being a little backward, he says they may do considerable damage to it if not attended to at once. He is afraid the worm will attack the late crop here, but to use the ditch or furrow is death to it in all cases.

The worm never gets far away from the place of its birth, for when it starts out on its voyage of life it expects nourishment at the outstart, but, not finding anything, soon sickens and starves to death. There is one fact which Mr. B. has always noticed, that the worm cannot travel an ascent of 45 degrees or on sandy earth. In his own State he said he knew of an instance where a farmer saw the worms marching toward his fields by the millions, and hurriedly getting ready his plough, made deep furrows. Then getting a number of boys with hoes, they awaited their approach. They came, made an effort to climb the furrow, but fell back in armies and were mashed into jelly by the boys. The sight and stench was a sickening one, but the remedy was final, for all were killed and the worm was not seen again until the next season.

Mr. Brown says he has made the army worm a study for years, and seems thoroughly posted in its doings from infancy.

Practical as Mr. Brown is represented to be, it is just possible he may be mistaken in some of his conclusions. But no matter about that, there is much in his paper, both interesting and useful. We think, however, that more army worms die from parasitic infestation than is ever suspected by the average observer. On the 25th of June we placed three of these worms (varying in color) in a small bottle and corked it up, intending to fill in some alcohol, which we forgot to do before we left them. On the following morning we found them all dead, and two large white maggots had issued from them.

These doubtless were the larvæ of a species of *Tachina-fly*. This may be said to be two out of three. On the same day (25th) we put about two dozen of them in two boxes of earth, covered with gauze, and placed some timothy in the boxes for them to feed upon. Half of these were dark colored and the other half light, and we kept them separate. Three days thereafter the larger number had burrowed into the ground to pupate; a few were still feeding, and half a dozen others were emaciated or dead, and we found a score or two of white cocoons, like those of *Microgaster*, often found on the bodies of the tobacco worm, (*Sphinx*) only that they did not adhere to the bodies of the worms, but to clods of earth, or the stalks of timothy upon which they had been feeding; one cluster contained about twenty of these cocoons. How many of these parasites were taken into the earth, in the bodies of these worms, we are unable yet to determine. These circumstances, we think, largely account for the mortality of the army worm, and illustrate why in subsequent seasons their presence is not recognized. Besides, if the ground where they existed this season in great numbers, is turned down in the fall for a winter crop, or in early spring for a spring crop, the eggs would not be likely to hatch, nor the young worms reach the surface if they did. Moreover, a severe winter with alternations of freezes, thaws, rains, and snows, would be likely to destroy the vitality of the eggs, and thus defeat them.

To Destroy the Cabbage Worm.

The complaint still continues of the ravages of the cabbage-worm and a demand for a remedy for it. In an agricultural journal a few weeks ago, a correspondent told of his troubles last year and that they were already beginning this season, and asked for some way to dislodge the worm. Several knowing persons responded, and in looking over their remedies we did not regard one of them as furnishing what was needed. But we can tell the inquirer and all others what is a remedy for the cabbage worm, which is within every one's reach, if it is properly applied. It is simply to sprinkle over the parts of the cabbage plant, where the worm usually operates, a *pinch of cayenne or red pepper*. Nothing more or less. Keep a few ounces on hand and use it when needed, but use it carefully, so as to reach the insect, so as to dislodge it.—*Germantown Telegraph.*

This is a simple remedy, and we have faith in it, because we have known it to kill other insects (aphids) long ago, and have often recommended it. A strong decoction or emulsion of red pepper thrown on the plants through a spraying machine, would perhaps be more effectual than the powder, as it would be more likely to reach the pests. It is good to destroy the red spider and other "vermin" in conservatories, or green houses. Here is another to the same effect:

The green cabbage worms which are becoming so widely diffused in this country are the larvæ of a white butterfly known as Pieris rapæ, a European variety. They are very destructive, and devour vast quantities of cabbage in every district they have invaded. One way of repressing the pest is catch the butterflies with small hand nets. The eggs are laid singly on the underside of the cabbage-leaf, and much may be done by crushing them before they hatch. After they appear a strong decoction of red or black pepper is a good preventive of their ravages.

We would also add, *look for the pupæ* which may be found suspended in the vicinity of the cabbage patches, and sometimes even on the leaves. Low, narrow benches, between

the rows of cabbage will induce the worms to pupate beneath them. These should be made of rough boards. This worm is attached by a parasite (*Pteromalus puparum*) which, in some localities, keeps them in check. On one occasion we received twenty of the *pupæ* from Chambersburg, and seventeen of them were infested with parasites. In some localities it may be presumed the parasites do not exist, and of course *there* the worm will increase rapidly, unless artificial remedies are resorted to.

Insects.

Destroy the eggs of the Tent Caterpillar, which are to be found in small, closely-fitting rings, or bands, near the ends of the smaller twigs, and may be cut away. Many insects harbor beneath the loose bark of trees, and by scraping this off and washing the trunk and limbs with a solution of soft soap much good may be done. To prevent the ascent of the wingless females of the Canker Worm, use heavy brown paper bound closely around the tree's trunk, and then smear with cheap printer's ink or tar. The bands will have to be re-coated at frequent intervals through the season.

Of course this paragraph alludes to an earlier part of the season than the present date; but if every subscriber to THE FARMER was wise he would save all his numbers, and have every one or two years bound in a volume for future reference, and for that purpose each volume is accompanied by an index, enabling any one to find what they want at the proper season. If those who subscribe for THE FARMER *do not* save it and have it bound, they will be sure to regret it before they become old men. We have every number from the 1st of January, 1869, to the present day, and we would not *take*, and really could *get*, five times the subscription price for a complete set.

Pests Along the Sound.

Another plague, and a very troublesome one, in Connecticut towns, along the shore of Long Island Sound, just at this time, is the rosebug. It attacks not only the rose bush and other flowering shrubs, but also fruit as well, both on vines and trees. At Saybrook and Westbrook its ravages have been very marked, and the apple, cherry and peach trees and the grapevines are covered with them and the fruit destroyed. On the grapevine the bug eats away the fleshy tissue of the leaves and the cluster of young fruit, leaving only the net-work of veins and the denuded stalk as a memorial of the visit of the destroyer. In the peach, apple and cherry tree they attack the young fruit, and will eat out entirely one side of it. At Oyster River the bug has been as abundant, perhaps, as at any point. There, on the Dennison farm, are to be seen peach trees bearing fruit that is now about an inch and a half in diameter. The younger Mr. Dennison assured our reporter that on the day before his visit he picked seventy-four of these rosebugs from one small peach. They cover the fruit three or four layers deep, and hardly a peach can be found that does not have upon it a score or two of these bugs. Rose bushes and the peony bush are entirely rifled of their flowery treasures. The edible vegetables appear to be entirely free from their attack. In the shore towns the potato crop has suffered much from the potato bug, but this annoyance is reported to be less troublesome this year than it was last. Everywhere Paris green is reported to be effectual in killing the bug.—*New Haven Register*.

It would have been more satisfactory if the writer of this last paragraph had mentioned the scientific name of the insect referred to, but we presume it is *Macrodactylus subspinosus*, a most pernicious insect, not only to roses, but also to cherries, grapes, common elder and many other plants. In any event, "go for them" all.

ESSAYS.

BATS.*

To many people bats are repulsive animals; a mongrel, between a "beast and a bird," and many a household is frightened out of its propriety when one enters an open window on a summer evening; and yet, in intermediate use, organic structure, general harmlessness, and relative position in animal classification, it stands above the lion, the horse and the kine; and no very remote distance from man himself. Let us parse the bat in the *Animal Kingdom*, just to illustrate the position occupied by that subject. Division 1. VERTEBRATA—Structurally distinguished by an internal skeleton and a spinal column. Class 1. MAMMALIA—Animals, the females of which yield a lacteal fluid. Order 1. BIMANA—Two-handed. Order 2. QUADRUMANA—Four-handed. Order 3. CARNARIA—Teeth adapted to flesh-eating. Suborder 1. CHEIROPTERA—Wing-handed. Suborder 2. INSECTIVORA—Insect eating. Family 1. VESPERTILIANIDÆ—Bats. Genus 1. VESPERTILIO. Species 2. *Noveboracensis*—Northern Bat. Eight orders, two suborders, and many groups, families, genera and species follow these before we reach the foot of the mammalian column, from which it will appear that if the Bat is not in the head, or neck of the systematic man, it is at least in the region of the thorax, and possibly the *pro*-thorax. It is not necessary to parse any farther as we have compassed the Bat, and that animal alone forms the theme of these remarks. The Bat family has a wide geographical distribution, including the entire world, and the species are numerous—seventy odd *genera* were in the British museum twenty years ago—measuring, in aler expansion, from five inches to five feet. The specimens before us to-day are the "Red" or "Northern" Bat (*Vespertilio noveborevenus.*)

Bats are systematically divisible into two great groups, namely, the *Frugivora* and the *Insectivora*, with an intermediate group of *Sanguinaria*, including the "*Vampyres.*" These groups are so diversified in external structure and habit that they have been still further subdivided into eighteen minor groups or families; but our species, according to the Cuvierian classification, belongs to the "first family." In the fruit-eating Bats the molars or grinders are flat on top like in other vegetable feeders, but in the carnivorous species the molars are surmounted with conical points. The chest and the scapular and clavicular processes of the Bat are largely developed and strong, giving them great winged power, but the posterior members are comparatively small and weak, not deficient however in prehension, as by means of these they are able to suspend themselves for many months, in caves and other shelters, during their winter hibernation. All the species are strictly nocturnal in their habits remaining concealed during the day and flying abroad in search of food in the evening, and their peregrinations are often continued until late in the night, especially when food is scarce. The carnivorous species capture their prey entirely on the wing and during their flight, and the number of insects a Bat will destroy during a single evening is almost incredible; and, in this respect, no phase of nature exhibits more strikingly the adaptation of means to ends, than the relation of the Bat to the insect world; and among the night-flying insects are found many of the most destructive kinds. Its operations are not a merely spasmodic effort that is suggested by caprice, but it is continuous and based upon the absolute necessities of the aggressive animal. When insects subside Bats also subside, for then the winter is near.

On the 15th of the present month (June) Mr. W. E. Lant, of 219 East King street, this city, brought me four specimens of the Red Bat—a female and three young ones—which he captured on his premises; the young being more than half grown, which illustrates the affection of this animal for its young, and how it continues to provide for them, even when they seem large enough to provide for themselves. Inasmuch as the female bat is provided with but two *mammæ*, like the *bimana* and *quadrumana*, the production of three at a birth is as abnormal in them as it is in the two orders named, or in the cow, the mare and the sheep, and, perhaps, not more frequent. The production of twins is more common, but more frequently they bring forth but one. This female seemed to have a very strong affection for her offspring, being entirely regardless of her own safety, hugging them closely to her body, and covering them with her membraneous wings. Two of the young adhered firmly to her two teats, and the third one seized a tuft of her abdominal fur, and aided by its hooked thumb, and its posterior claws, it adhered so firmly to the mother that it was difficult to effect their separation without injuring them; and as I intended to embalm the whole family in alcohol, as a contribution to science, it was not without some compunction that I accomplished my purpose. About twelve or fourteen years ago a colony of bats located itself behind a large sign-board against the front of No. 101 North Queen street; and, as they increased rapidly in number, their presence became exceedingly offensive to the tenants of the building, and I was requested to have them removed. Now the odor of a *Bat*-tery of that kind is by no means as pleasant as ripe peaches or "Araby the blest," hence I was compelled to assault them in their citadel. On that occasion I pursued the most humane course I could think of to dislodge them, and I succeeded beyond my expectations. I merely drew out the sign about six inches from the wall, and admitted the sunlight, when all that were able to fly immediately took their departure, after only a slight disturbance. They bore off many of their young, but still they left many behind, and as they did not return for these during the day, I began to doubt their vaunted affection for their offspring; but I was too precipitate in my doubts, for on the following morning I found that they had returned and carried the remaining ones away during the previous night, and as the sign was never placed back in its former position, it was never reinhabited by the bats, and I was glad I was not under the necessity of destroying them, so fully was I impressed with their usefulness. The tall steeple of the Lutheran Church, on Duke street, is an ample shelter for bats, and on one occasion I found a colony of some hundreds located there, although the premises were also occupied by a family of Barn Owls (*Strix pratincola.*) Some years ago I read a very interesting description of a bat-cave in Texas, where these animals assembled together by tens of thousands. An eye-witness who visited the place one evening, stated that it required more than an hour for them all to issue from the cave, and that they came forth in such a dense column that their presence produced premature darkness. These distributed themselves over a vast area of country, and it occupied nearly the whole night for them to return and re-enter the cave again. The benefit these animals conferred upon that insect-stricken country by their presence, and how utterly desolated it might have become without them, can only be imagined but not realized, for it far surpasses merely human calculation.

Aristotle defined the Bat as "a bird with skinny wings," and Pliny speaks of it as "a bird that brings forth its young alive and suckles them," and the mediæval naturalists mainly confined themselves to copying the ancients. Although Aldrovandus made some advance in relation to these animals, yet yielding to the prejudices of his time he placed them in the same family with the Ostrich, on the ground "that these two species of *birds* partake equally of the nature of *quadrupeds.*" Scalliger considered the Bat a perfect marvel, "because it flies without wings, sees in the dark, and becomes sightless when light appears." "It is," he adds, "the most singular of all birds, because it has teeth and is without a beak." But these old notions in relation to the Bat have been dissipated by the illuminations of ever advancing science, and hence it is found that the Bat has two auricles and two ventricles; the right auricle and ventricle to throw the blood through the lungs, and the left through the general circulation of the body. They have cellular lungs, suspended and surrounded by a pleura, a muscular diaphragm, interposed between the cavity of the chest

*Read before the Linnæan Society, June 26th, 1880, by Dr. S. S. Rathvon.

and abdomen, an ample and solid brain, and a skull composed of the usual number of parts, joined to each other by sutures. "They have the same sentient system, and the same organs of digestion and secretion" as other *mammals*, which alone and separately show that they must be classed with them. But that is not all; in their anatomical structure, and especially their bone system, they make a nearer approach to the *Bimana* and *Quadrumana* than to any other order in the whole class MAMMALIA. The only bone structure that makes the least approximation to birds is their powerfully developed *sternums*, which is essential to their mode of aerial locomotion. This fact also illustrates the futility of any man attempting to construct wings by which he could be able to fly through the air, without first being endowed with the scapular, the clavicular, and the sternal development of a bird or a bat.

Perhaps there is no subject of the animal kingdom that is endowed with a more delicate sense of touch than the Bat. In 1793 Spallanzani put out the eyes of a Bat and observed that it seemed to fly with as much ease as it did before, and without striking against objects in its way, even such delicate objects as silken threads stretched hither and thither in such a way as just to allow room enough to pass through with expanded wings, and when the threads were placed closer together, by a contraction of the wings, the animal was enabled to pass through without touching them.

Cuvier, in a paper read before the French Academy, in 1796, referred to this delicate sense of touch in the Bat as resident in the ears and wings. "During the flight of the bat, and especially if it be blinded, whenever it approaches any object, the air set in motion by its wings reacts against their surface with a greater or less degree of force, and being in this manner warned of the proximity of the object it is thus avoided."

The wing of the Bat is nothing more than an extraordinarily prolonged development of the humeral, radial and phalangial bones of the arm and hand, covered by a delicate membrane, which commences at the neck and extends to the ends of the fingers, and from thence to ends of the posterior limbs and the end of the tail, leaving the thumbs and the hind feet free. These free members are provided with sharp, hooked ungues, or claws, which are only used as instruments of prehension.

In no respect does the Bat make a nearer approach to the *Bimana* than in the development of the genital organs, in which they are hardly excelled by the *Quadrumana*.

Linne says, "*Penis illis, generis humanimore, propendens: character profecto talibus animantibus mirum.*" It would be utterly impossible for Bats to accomplish a sexual embrace otherwise than *vis a vis*.

When Richard Locke wrote and published his celebrated "Moon Hoax," Sir John Herchel was down at the Cape of Good Hope, in South Africa, testing his great telescope, and the public was expecting some great discovery in relation to the inhabitants of the moon; and in view of the relation of Bats to the human race, Locke seized the opportunity to palm his hoax upon its credulity, by representing the inhabitants of the lunar orb as a species of "Man-Bats." No one but the adult readers of that period can form any conception of the immediate popularity of that tale, nor with what credulous avidity it was "gobbled up" even by scientific readers. The natural history and the anatomical structure of the Bat, in its comparative affinities with the *Bimana* and *Quadrumana*, made it probable that if such a secondary planet as the moon was inhabited, it would be by beings somewhat below man in their physical structure and mental character. Perhaps it would not have done, in a comparison between the earth and the moon, to have made them *four-handed*, or representatives of the monkeys, therefore he made them *wing-handed*, or representatives of the Bats. This superiority of the physical structure of Bats, in their comparative relations to other animals below them in mammalian classification, was also recognized by the author of an interesting little novelette entitled "Peter Wilkins," in which it is represented that a beautiful winged female had somehow passed beyond the moon's surrounding sphere, and was brought within that of earth, and through some meteoric violence was landed, unhurt, on *terra firma*; she was also "wing-handed." Animals analagous to Bats in external form have been found fossilized in the oolitic deposits - the *Pterodactyla*, for instance - but geologists refer these to the *Reptilia*.

Although the Bat may be repulsive, or cause an involuntary shudder to many, and perhaps cannot be contemplated by *any one* with the pleasurable emotions that are called forth in viewing a beautiful bird or flower; still, as an element in nature's economy, in the present condition of the physical world, and especially as a factor in maintaining nature's equilibrium, its presence is absolutely necessary, and our aversion to it may be against a useful, timid and harmless animal friend. The Bat is only twice directly alluded to by *name* in scripture. In Lev. 11: 19 it is designated as unclean, an abomination, and therefore not to be used as food. There is, nevertheless, a large species of Bat (*Pteropus edulis*) that inhabits Asia, the Indian Archipelago, Australia, Madagascar and South Africa, that is eaten by the natives of those countries, and is esteemed an excellent food, but it is one of the frugiverous Bats. In Is. 2: 20, it is figuratively mentioned, as "casting idols to the moles and bats." But, however useful the Bats may be, in the present economies of the natural world, we can hardly divest ourselves of the thought that these feelings of aversion towards them may have a deeper and more significant origin than merely hereditary transmission or the result of education. At that point, however, the subject passes the boundary of the physical plane.

CONTRIBUTIONS.

For The Lancaster Farmer.

DURABLE FENCE POSTS.

The old joke, often repeated in my boyhood, is not yet laid aside, that "a fence of locust posts and chestnut rails will last forever, for Daddy tried it once!" I often read directions for lessening the enormous expense of farm feneing, by preparing posts so that they will last much longer than usual, by charring, coating with tar, boiling in gas tar, soaking in coal oil, whitewashing, setting upside down, &c., &c. These remind me of an early experiment, plausible as any, but which I have not seen recommended, and the results of which I never learned. In the hope that some person may inquire and publish the results, and thus confer a great benefit on a fence-taxed community, I send the following for publication. I begin to learn that at 77 years, I am of little use except to tell what I remember, and get others to inquire after, and make known what is useful, when I cannot do so in person! So to my story and request.

Nearly 60 years ago, an experiment in saturating oak posts with lime was tried in Lampeter township, about four miles from Lancaster, and within a mile of Lampeter Square, in the valley of a small tributary of the Conestoga, called Mill Creek. The names of the neighboring farmers yet remembered were Meylin, Bowman, Strohm, Meck and several named Rohrer—among them Esquire John, (the father of Doctors John S. and Amos K. Rohrer,) and two named Christian—one of whom made the experiment. A deep, square pit was dug near the stream, and floored and lined with boards. The posts, ready hewn and mortised, were laid in the pit on a layer of quick lime, mortised parts lapping, so as to make each layer as compact as possible. Thus layer after layer, posts and lime alternating, the pit was filled to within a foot of the brim, lime covering the whole. The posts and lime were closely covered with plank, and earth piled high on the plank, and packed as tightly as possible, except a small hole at one corner. Into this hole the water of the brook was gradually introduced, making a terrific hissing and rumbling, heaving the covering like a miniature earthquake! The whole was then left undisturbed for several days or weeks. The saturation and neutralization of wood acid must have been complete - every pore searched with the caustic steam, and filled with the powdered lime!

Is there any person in, or formerly of that neighborhood, who knows anything of that experiment and its practical results? Will not some boy or girl of 1822, or some person who has heard from such boy or girl, tell the history of that singular experiment, and inform the world how those oak posts have lasted, compared with other posts not thus treated? Here is an opportunity for doing a good and great service to the farming community; for even if the experiment proved a failure, a statement of *that* fact will do good by saving others from repeating the failure, and by directing experimenters into more successful efforts.

True, 57 or 58 years is a long time in a life of continual chances and changes, but one who was then 18 years old, and engaging to teach his first school in the little log building, under the spreading chestnut tree, by the road side, is writing this account and request—why may not others who know more on the subject, be living and active also, and living in that neighborhoood? Four or five years ago, of my 30 to 40 pupils, three brothers were living near Dayton, Ohio, a fourth was "living on the old place" in Lampeter, and a sister was also living. Besides these, two sons and a daughter of another family, were yet living—all of the name of Rohrer. And Isaac S. Strohm, another pupil, (up to 1876 or 1877 Engrossing Clerk of the House of Representatives in Congress), was also living in Dayton, O. Thus *nine* (and possibly others not known) were living more than half a century after—from 20 to 25 per cent. of that school of 1822-3! I am therefore encouraged to hope that some persons can be found in that section, who know, or have heard and can tell all about that experiment and its results. Will not some public spirited and inquisitive-minded reader of the Lancaster Farmer make it his business to search for and publish what he can learn on the subject? If either of our county societies have any zealous antiquarians in membership, I would respectfully suggest giving them "a mission" to Lampeter, valley of Mill Creek, to see what they can find of information on this subject. Should the limed posts be yet doing good service—or have proved much more durable than common—we have at once a sure method of lessening the cost of fencing, in all sections where lime is abundant.—*I. B. G.*

For The Lancaster Farmer

OBSERVATION AND EXCERPTION.

In the first book of Livy there is a description of the use made of the *verbena;* (Sagamina of Pliny)—to confirm and bind treaties entered into by the ancient Romans on the return of peace with their hostile neighbors; also used by the embassadors when they went to reclaim anything that had been carried away by an enemy, and the person who had the office of carrying it, was called *Verbenarius*.

In the north temperate zone verbenas are herbaceous annuals, rarely perennial; but in tropical regions the verbenas are shrubs and trees of great size. The Teak tree is a timber tree of great value; the wood is very close grained, tough and durable: it is suitable for every variety of wood-work Botanically, the Tectona grandis, of India. This may be the verbena that furnished the insignia of friendship to the ancients.

I recently examined some gambling boats from Burmah, made of this wood. They were

two and a half and three feet in length, gaily painted; they were of the general shape of the Indian canoe, about a span in width. The prow was furnished with a bunch of feathers tied to an iron point driven in. When the gambling race is to take place, the owner of each boat entered, invokes the patron deity with offerings for its success; at a signal the boats are turned adrift and the winning one is that which arrives at the station first. The others are usually abandoned, because the favor of the deity—it is supposed—is withheld.

Fulke, Earl of Anjou, who lived a century before the Norman conquest, having been guilty of some crimes, was enjoined to go to the Holy Land, which he submitted to, and to show his penance and humility he wore the *Genista* in his cap, as this was considered a symbol of humility. He afterwards adopted the title of Plantagenet.

The Genista (tinctoria) grows plentifully in the British provinces, it is the *broom* and *dyeing weed* of Europe.—*L. N. Z.*

SELECTIONS.

DO NOT NEGLECT YOUR WELLS.

Friend, you have a mud hole at your well? Go for it at once. Do not eat or sleep till it is removed. Take a hoe and drag out the mud and filth, and then fill the hole with dry soil or sand. After doing this, shut out the pigs and poultry from the well, and keep them out. If the curb is broken or rotted down, replace with a new one. After doing this, scrape away the grass and surface soil around the well, and replace with a layer of sand and gravel. If, from the character of the land, your well ever fills with water, cut a ditch six feet deep all around it, at the distance of a few yards, and have an outlet from this to take off the water. The water in the well will not, after this, rise higher than the bottom of the ditch. If your water is muddy and impure, throw in a peck of lime to purify it. If animalculæ appear in the water, throw in a half gallon of salt to make them settle to the bottom. And it is worth while to take some pains to fix up some conveniences at your well. A bench to set the bucket on while it is being filled, and a handy and easy way to get the water, and a smooth, dry path from the well to the kitchen—these things will make so much easier the task of your wives and daughters. Farmers, do not neglect your wells a single day longer, but see that all about them is neat and tidy, and determine to keep it so.—*Maryland Farmer.*

LIGHTNING AND TREES.

Professor Colladon, of Geneva, has made some interesting observations on the course of lightning when it strikes trees and houses. He holds that the great discharges which injure trees and houses seldom or never happen while the lightning has an unobstructed course—which it has along the thin upper branches of trees, where birds and their nests are often left quite uninjured by its descent. But it is where the electric current reaches the thick stem that the tree becomes a worse and worse conductor, and it is here, therefore, that the tree is what is called struck—i. e., here that the electricity, failing to find an unobstructed channel to the earth, accumulates in masses, and gives out shocks that rend the tree. And the same is true of houses whose lightning-conductors stop short of the ground. Professor Colladon has also shown that the close neighborhood of a pool of water is a great attraction to the electric current, and that the electricity often passes down a house or till it is near enough to dart straight across to the water; and he thinks that where possible, lightning conductors should end in a spring or pool of water. Professor Colladon believes that lightning descends rather in a shower—through a multitude of vines, for instance, in the same vineyard—than in a single main stream. It divides itself among all the upper branches of a tree, and is received from hundreds of atmospheric points at once, instead of, as has been usually supposed, from one. Electricity is a rain, a number of tributaries from a wide surface, not a single torrent.

ESSAY ON GENERAL FARMING.

Dr. C. A. Greene read an essay on "General Farming." Among other things he said:

I also suggest the keeping of memoradum books, into which the farmer should enter from day to day anything he wishes to do, and by referring to it, he will see what has and what has not been done. Another book to keep other entries is very serviceable, days when plowing commenced, corn and other grains planted, days for town and other meetings, to what neighbor and at what time he loaned a plow, harrow or other instrument. If you please you can keep half a dozen of these books, and on the cover of each one the style of contents may be noted: No. 1, crop book; No. 2, tool book, etc.

Collection of Fertilizing Material.

The most prominent object in all farmers' minds must be the collection in the cheapest manner of the greatest amount of fertilizing material, for the stern and unchangeable law of nature says that you must return the elements you are abstracting from the earth, or fruitful growth will cease in the ratio of abstraction. The above axiom strongly reminds one of Benjamin Franklin's wise saying in his almanc callled "Poor Richard," viz: "Always taking out of the meat tub and never putting in soon comes to the bottom." Then remember that any animal, vegetable or mineral substance, when disintegrated or rotted, can be appropriately brought into your compost enclosure grounds, and if your compost yard is covered, so much the better. Keep under your barns always some muck from your meadow or swamp. While it is decaying it is also absorbing the valuable watery dejections of your animals, containing phosphates and ammoniates in solution. Don't burn up any old bones, shoes, bits of carpets, leather, straw or such like material. Put them all in the compost heap.

Stir It Up Occasionally.

This prevents evaporation and encourages disintegration. Save all the old lime from the newly plastered walls. Put all your ashes, either made from the anthracite or bituminous coal, or wood upon the heap. Heavy or clayey soils are made loose by the use of coal ashes and allow the tender fibres of the plants to shoot in amongst them for nourishment. Haul in all your surplus leaves and add to the pile. Take out every shovelful from under your privies, sheep and hog-pens and mix in with other ingredients. Don't waste anything, not even the slops of unused offal from the house. Every pint of soot from the chimney will add another constituent greatly needed. To every ton of compost add at least a peck of coarse salt. Salt and saltpetre possess, with gypsum, wonderful properties of absorbing moisture from the atmosphere. Hence in continuous dry weather the crops are aided in taking up nutrition from the earth."

The Treatment of Animals.

I advise the use of a variety of food and warm barns. Always warm the bit for the horse and take off the chill from the water given to cattle. Drive your colts without "blinders." Their use injures the eye, by rubbing against the orbit or bone, and the vision by its nearness to the eye. The check-rein is also an unnecessary appendage, and there should be a law making the use of the check a penal offence, because it induces strangulation and is a brutal torture.

Fertilizers.

The great and most important questions that all farmers must constantly discuss, and attempt to decide, are 1st, what kind of fertilizers do the various portions of my land require? 2d, how large or how small is the amount to be applied? 3d, how often must they be placed on the soil? 4th, shall they be spread when applied, or left in piles to be afterwards scattered? 5th, shall they be applied in the fall, spring, or at the very time when the seed, roots, or vegetable growths are set out or transplanted? 6th, do I require one kind of manure this year and another variety next year? and last and most important, or 7th inquiry, is, where can I the most economically obtain the various compost required? I have said in a former article upon this subject that one of God's laws is, that in the vegetable and animal world especially, a constant process of growth and decay is ever going on; formation and disintegration is now and ever will be the commencement and end of vegetable and animal life.

PLEURO-PNEUMONIA IN THIS STATE.

The war which has been kept up against this disease for more than a year past seems to be producing its effects.

The Disease Disappearing.

The last herd in Lancaster county has been released from quarantine as entirely free from the disease, and the last animal has been paid for in full. In Adams county no cases of the disease are known, and we believe that it has been eradicated from that county also. York county has shown no cases within the past year and may fairly be added to the list of non-infected districts. In Montgomery county State Surgeon J.C. Michener has two or three cases in charge; in two or three localities in this county the outbreak has been more than usually stubborn and difficult to control; the prompt and decided action of the State authorities has prevented any serious spread from the original centres, and it is hoped that the county will soon be free from the disease. No cases are known in Bucks and Lehigh, and they are now considered clear, although a serious outbreak occurred in each.

Precautions at the Philadelphia Stock Yards.

Surgeons are now in charge of all of the Philadelphia drove yards, and no diseased cattle can leave the yard. Heretofore, when the disease was clearly shown in the herd, it was common to rush it off to market for sale at any price possible. The action of Governor Hoyt and his assistants in promptly placing every diseased herd in strict quarantine has prevented this cause of contagion, and has no doubt saved our farmers much loss and the State greatly increased expense.

How the State Agent Went to Work.

When the disease was taken in hand by the Governor's agent it was considered that there were two ways of conquering the evil: I. A special force of surgeons might be detailed to *hunt up* the disease, or by paying a fair price for animals killed thus make it to the interest of the owner to promptly report the outbreak. New York and New Jersey adopted the former plan, and the former expended $60,000 and the latter $35,000 in one year without accomplishing the desired result, or even seemingly decreasing the number of diseased herds.

The Method and Cost in this State.

In Pennsylvania the theory was adopted that it would in the end prove *more economical to make it to the interest* of the unfortunate owner to report the cases by paying a good price for condemned animals. Thus far less than $5,000 have been expended, and the United States Veterinary Surgeon has said that "Pennsylvania has done and is doing more to eradicate the disease than any other State."

Excellent Results of the Plan.

This plan of offering an inducement to report cases by paying for the animals has worked so well, and the disease has been reduced to so low an existence that it has been resolved to still further adopt it, and hereafter the plan will be as follows: As soon as reported the herd will be visited by a surgeon in the employ of the Governor's agent, who will name one appraiser out of three, who shall appraise the then diseased stock at its actual value *at the time;* at the same time

they will appraise the remainder of the herd, individually, at their actual or well value, and if in the subsequent course of the disease it becomes necessary to kill any of the animals which were in good health at the time the herd was reported, this well value will be paid. This makes it to the interest of the owner to report promptly, for each day's delay increases the number of diseased animals and reduces the amount paid, thus increasing his loss.

Misrepresentation.

In some cases the State officers have been very much misrepresented, and their action distorted to suit the wishes of private individuals, but so far as known all who have been directly interested have been satisfied with their action, and the slight cost, when compared with that of other States, is a cause of satisfaction to the taxpayers.

THE WILEY PLOW.

The late Bernard Wiley was known throughout Chester county in connection with the justly celebrated Wiley plow, which for many years was the favorite furrow turner. Many people supposed that Mr. Wiley was the inventor of the plow, but such is not the fact. The father of Bernard Wiley owned the farm in Kennett township, on which the late Wm. Cloud resided. It was an entail and had descended to several generations. The older brother of Bernard was James, and by the law of entailment the property became his on the death of his father. But James held that this was unjust and offered to release all interest in the farm if Bernard would pay him half its value. This was done and James left home with his money. He went to Peekskill, New York, where he purchased a foundry, which, among other things, manufactured plows. An apprentice in the establishment, by the name of Harvey Coukling, invented a plow which was conceded to be better than anything in use. But he was without the means to push his claim, and James Wiley took out letters patent in his own name, and at once began the manufacture of the plows. He carried on the business for a number of years and when he died, childless, he left his business to Bernard Wiley and Harvey Conkling as equal partners. Bernard went to Peekskill and remained there for several years and when he sold out his interest he came to Kennett and set up in the same business. But he found that he could make more money by retailing the finished plows than by making them himself, and, as he controlled all this county in the sale of the implements, he did not fear any competition. In the meantime Hiram Hall, who had been a plowmaker, having manufactured the bar-share, many of them with wooden mold-boards, set up in Kennett, where he had formerly worked for Bernard. He was obliged, of course, to purchase his castings through Bernard, but as this interfered with the trade of the latter the castings were very slow at coming. Finally Mr. Hall mentioned his trouble to Henry Brosius, a storekeeper in the place, and the two men formed an alliance and endeavored to buy their plows directly from the factory at Peekshill. They called to their aid the scholarly Samuel Martin, whom they hoped would be able to write a letter that would bring the manufacturer to terms, but this failed. As a last resort Messrs. Hall and Brosius raised $500, and giving it into the hands of James Green, directed him to go to Peekskill and purchase castings. He did so, and to ally suspicion had them shipped to Wilmington, where, however, they unluckily fell into the hands of Wiley's agent, who conveyed them to his own premises. Hiram Hall at once went to Wilmington and succeeded at length in getting his property. When these were used up, James Green was sent to Peekskill a second time. He was at once recognized and closely questioned, and when the founders discovered that the Chester county plow makers were determined to have castings, they sent Mr. Green home with the message that Hall and Brosius might have all they stock the wanted. Mr. Hall continued in the trade for several years, the best market being in Lancaster county, where left handed plows sold for $12.

THE COMING INDUSTRY.

The current number of the *Sugar Bat* is an excellent one. It is filled with practical articles relative to the best methods of cultivating the sugar beet and the latest methods of sugar making. It is invaluable to all those who have any desire to enter upon the cultivation of what we believe will be one of the crops of the future in this State. In the present issue there are many articles that have a most important bearing upon all that pertains to the growing of the beet and the manufacture of its juices into sugar. The soil that gives the best results and the tillage required are clearly set forth.

Few persons are aware of the vast extent this industry has reached in Europe. For their information we give the product of the principal beet-sugar making countries for the season of 1879-80, as estimated by the best authorities. Germany stands at the head of the list with 410,000 tons; Austria-Hungary comes next with 385,000 tons; France follows with 270,000 tons; Russia with 225,000, and Belgium and Holland with 85,000 tons between them, making a grand total of 2,750,000,000 pounds. New factories are going up in many parts of Germany, and Switzerland is about to erect several large establishments.

Europe, with a climate in nowise better adapted to the growing of sugar beets, now exports sugar largely, sending it to Egypt, Syria and Persia. If on her limited soil all this is possible, what may not American farmers and American enterprise do on our wide expanse of territory and our great range of climate? The greatest drawback to sugar making from beets in this country is the attempts of novices. While it can be made profitable in skillful hands, there is no quicker way of sinking money than for amateurs to go into the business. We are so progressive that we are not satisfied to adopt the methods of the foreign manufacturers who have been successful, but we at once begin to improve upon their plans, without really knowing half as much as they do. We are still in the infancy of the business, both as regards beet growing and sugar making, and until we attain something like years of maturity we should be satisfied to hasten slowly. Repeated misfortunes and disappointments at this early stage will do more to discourage the beet sugar enterprise than all causes combined. As we are beginners, let us be content to learn. Let our farmers take up the cultivation of this crop and pursue it steadily, aiming to increase the amount grown per acre and the saccharine qualities of their beets. Let them take and read the journals devoted to this interest and their success is assured.—*Lancaster New Era.*

BLACK WALNUT FOR ENGLAND.

The Des Moines (Iowa) *State Register*, in a recent issue, says:

The lumber dealers of England are making a grand raid on Iowa and all the black walnut States, and are fast taking from us all that we have left of that timber. The native forests in Ohio and Indiana were rich with this now precious wood, and the early settlers of those States, in clearing the land for agricultural purposes, destroyed numberless thousands of acres of the timber, little thinking that in doing so they were destroying that which in a few years would have made their lands more valuable than gold or lead mines. The havoc of timber in Ohio and Indiana—the settlers there spending nearly a hundred years in destroying the woods with which they found the surface covered—girdling and killing the great forests one year and burning them the next—is one of the queer things in American history as it is now looked at. The magnitude of it young people now and all the people of the future will never realize. It was an enormous destruction of values, the total of which may be estimated at hundreds of millions of dollars. But it was inevitable. For, although west of Indiana and Ohio there were the known open fields and boundless prairies making up the whole new Northwest, where the land lay ready for the plow when the settlers first set foot on it, there was then no iron horse to make it, in this far-away location from the markets of the world, available. So it was ignored, and two generations of industrious people spent their lives and wore them out in the pitiless toil of hewing farms out of the dense forests of Ohio and Indiana. To the people of the present these seventy-five years of steady assault on the forests seem like a seventy-five years' war and havoc. For it is estimated by good judges that if the States of Ohio and Indiana stood covered now with their native forests, they would be worth more in actual value than they are as they stand to-day. The destruction has but lately stopped. The writer here has seen in the last twenty years this destruction going on in Indiana—in the great woods of Jennings and Bartholomew counties. The eighty acres of walnut and poplar that the settler then spent six or eight years of hard labor to destroy, would now make him rich, and be worth far more than his cleared farm—and that was only twenty years ago, when there was not this one excuse, that there were no railroads to take settlers to the open land, where the soil was still richer and there were no forests to fell.

But we are writing of this English raid on Iowa. It is a raid to take from us what of black walnut we have left. The traveler along the railroads of this State sees now, at nearly every important station, a little outdoor steam saw-mill working away like mad, ripping up black walnut logs into great slabs. All over the West, in the black walnut belt, these little saw-mills are cutting up into a certain form of broad and thick slabs all the black walnut that can be got hold of. A large and wealthy corporation of Indianapolis men, co-operating with a company of English capitalists, are the proprietors of these mills. They have their buyers out at every little station, and in the rural districts, and wherever the smallest patch of black walnut can be found. Two of these little mills are now tearing away in the city of Des Moines, another at Mitchellville, and all that we have left of this valuable timber in Polk county and Central Iowa is fast passing under their saws, coming out broad slabs, and going thence directly on the cars on their way to England, where, in their greater wisdom, the people have come to know that black walnut wood is already as valuable, because of its durability, beauty and growing scarcity, as mahogany. It is a general raid all over the West, and our farmers, if they knew of the scheme, would not sell their walnut trees as they are selling them now, for a mere tithe of what they are really worth.

THE SNAIL AND ITS SHELL.

A writer in *Good Words* says: This needful portion of the snail's structure is secreted from the surface of the mantle. First a simple cell is produced, and this is afterward filled with calcareous matter, extracted by the wondrous chemistry of animal life from the vegetable on which the snail has fed. These vegetables, in their turn, have first extracted it from the earth. It is evident that shells of snails must differ in accordance with the soil. About Sheffield, I am told that snails are extremely rare; while on chalk downs they absolutely swarm, existing in such numbers that the celebrated "Southdown" sheep are thought to derive the peculiar flavor of their flesh from the snails which the sheep are obliged to consume while grazing. In the formation of the shell it is found that the edge of the mantle is employed in the enlargement and coloring of the shell, while the other portions are used in thickening it. Thus it is that the interior layers of the shell, which are deposited by the central part of the mantle, have no color, and are simply white.

If a portion of a snail's shell be broken away the gap can be effectually mended in point of thickness. But the coloring matter will be either wholly or partially absent, and so there will be a gap in the pattern. The whole subject of the coloring of shells is a very interesting one, but it penetrates too deeply into the arcana of chemistry and optics to be suitable for the present paper. The same may be said of the snail's blood. Any one, however, who wishes to investigate this subject, will find that the researches of the President of the Geological Society, Dr. H. C. Sorby, have cleared away many of the difficulties which surrounded this subject. This same distinguished investigator told me that the azure hue of the snail's blood and tint of the sky were both owing to the same cause, *i. e.*, that certain constituents of that blood and of air absorbed the red and yellow rays of light but allowed the blue rays to pass almost unaltered. Some of the mollusks have opalescent blood, and in this case the colored rays are irregularly absorbed or rejected.

HOW THE OCEANS WERE MADE.

It has been commonly assumed that the water of the ocean was orignally fresh, and that it became gradually salter as the rivers carried down to it the salts held in solution. Mr. H. N. Moselly, in a recent lecture before the London Royal Institution, thinks that even the primitive sea must have been highly charged with saline matter of all kinds. When the earth was still intensely heated, the whole of the water now on its surface must have been present as gas in its atmosphere, at first no doubt disassociated; but afterward an aqueous vapor. Since if the sea-bottom and continents were smoothed down to a uniform level, the sea would still suffice to cover the entire earth to a depth of over one thousand fathoms, aqueous vapor equal to a layer of water of that thickness must have existed in the atmosphere, and have produced a pressure of more than a ton to the square inch at the earth's surface. To this pressure must have been added that produced by all the other vapors with which the primitive atmosphere must have been filled. As the earth cooled the water condensed on the coolest spots from time to time, boiled and rose as vapor again. Mr. Moselly conjectures that the first water formed on the earth's surface may have been even as hot as molten castiron. At last permanent seas were established. The water of these, heated to an intensely high temperature under great pressure, must have dissolved salts in abundance from the freshly consolidated earth's crust, and being constantly in a state of ebullition as the pressure diminished at the surface with the growth of the seas, or the temperature of the earth's surface varied in different places, must have taken up vast quantities of rock matter in suspension, and become thickly charged with volcanic mud. Intensely hot rain must have fallen on the land and washed down more salts and mud into the sea. The whole ocean must have consisted of a vast mass of seething mud. It must have required a protracted period for the ocean to become clear, and for its deposit, which was perhaps something like the present deep-sea red mud, to settle, and possibly the deeper water long remained uninhabitable, being overcharged with various gases and suspended mud.

GOOD WORDS FOR THE SKUNK.

A fuller acquaintance with the habits of the skunk would lead us to consider it one of our most valuable friends. We make our first acquaintance with it, however, through the sense of smell, or the death of young chickens and ducks, of which the skunk is very fond. The intense odor of the skunk is oppressive, and it makes its presence known in a way that is unique and searching. While the fragrance of the skunk is sui generis and overpowering, it is not damaging as that from sewers and sinks and neglected potato bins and cabbage pits. Judging the latter from odor alone, they must be condemned more surely than the odoriferous skunk. We know the uses of potatoes and cabbages, and think of their good qualities. But not so with the skunk. Let us see if we cannot afford to endure them on the farm, and allow them an occasional chicken or a duck for a change of diet. The skunk is pre-eminently an insectivorous animal. He diligently pursues his calling at night when insects are most abundant, and, when his enemies, dogs and men, are asleep. He devours even the Colorado potato-bug (decem-lineata,) and finds a rich morsel in the strawberry-grub (lachonestra.) He makes hearty meals on cut-worms, and gorges himself with white grubs, the larvæ of the May beetle, which he roots after in the loose sod, or the decaying hay or straw about stack-yards. He plows through the litter and leaves gathered in the nooks and corners of the fields, which are the coverts and breeding-places of the myriads of chinch bugs. He reaches millions of enemies in secluded places which man cannot reach with the plow, or rake, or fire. We may clear the litter and trash from our fields, but the corners and fence-rows harbor the enemy we try to destroy. A kind providence has sent to our aid this half-domestic animal that seems to increase like the Norway rat in populated districts, and for the common reason that his food is more abundant there. We wish we could see some like compensation in the presence of the rat, but science has not yet revealed it, and American civilization has not, like Chinese, found use for it. The skunk, unlike the rat, pays as he goes. We can afford to take care of the chickens and ducks and let skunks multiply. Build the walls of our porches and dwellings so the skunks cannot get under them, and they will keep at such a distance from our homes as not to offend us. The old Greek motto, "Know thyself," is a good one, and it suggests a good one for us, "Farmer, know thy friends."—*Cincinnati Commercial.*

ANIMAL INTELLIGENCE.

A correspondent of the New York *Evening Post* writes:

More than forty years ago my father's clearing, near what is now the city of Guelph, was surrounded for many miles by an almost unbroken forest, where leeks, cow-cabbage, and the spring foliage of young maples and basswood supplied abundant food for cattle. At that time it was my fortune or misfortune to drive a yoke of oxen, "Golden" and "Spark" by name, who, at sunset, were turned into the bush with the rest of the herd. Morning found the cows near home; but very rarely on working days were the oxen with them. "With many a weary step and many a groan" has the writer hunted the sly absentees and found them usually in some dense thicket on the edge of an interminable swamp. On Sunday mornings they came home with the cows and lay down in the barnyard with the calm confidence born of a clear conscience and assured rest. On six mornings in the week they almost always hid themselves; on the seventh they returned with the herd. How did they know the Christian day of rest except by actual count of the intervening days?

"Spark" was a consummate hypocrite and genius withal. I grieve to say he was the most breachy brute in the township, and his code of morals was strictly Spartan or commercial; his sense of sin being awakened not by his wickedness, but by the discovery of it. With head and foot tied together he used to plant his "head's antipodes" against a fence—not for the sake of scratching "where'er he did itch," but with the fell purpose, too often successful, by direct pressure and thumping, to break down the barrier between himself and a paradise of growing oats or wheat in the ear. Peace to his memory! He made good beef.

In 1835 a neighbor living about three miles away bought a cow at the half-yearly Guelph cattle fair. A few evenings afterward the purchaser, hearing a tinkle of the cracked cow-bell, sent his ten-year-old barefooted Polly to bring Daisy home. Entering the dense gloom of the solemn old forest, Polly lost her bearing, and found her cow. Grasping the tail of Daisy she hurried her captive homeward; but impelled by a sudden impulse to visit the home of her childhood, Daisy led the child a weary night-walk through swamp and upland. Sagacious Polly retained her hold, and the next morning was safely landed at the shanty of Daisy's former owner, having walked at least fourteen miles, barefoot, in the dead of night, through an unbroken forest. Polly was comforted with warm, new milk and brown bread, and was soon nestling among straw in an ox cart, with Daisy tied behind, and Hans driving her home, where they arrived in the afternoon to find the settlers, for miles around, with tin horns and dustpans, sconring the woods in search of the missing child. When asked if she was hungry in the night she said, "Oh, no! I just coaxed Daisy to stop, and milked into my mouth."

Now, a pig will find its way for miles to an old haunt, but, like Sennacherib, he always turns back by the way that he came. Daisy had traveled east to Guelph, thence south to Polly's. By what faculty was she able to strike a bee-line through a pathless forest from her new home to her old home?

BOSTON BAKED BEANS.

Though Boston has acquired some fame as a large consumer of this esculent, baked beans have been from time immemorial a favorite dish throughout New England. The sturdy men and women of generations ago, who braved dangers and hardships in planting an independent colony, added strength to their sinews and muscles by eating a simple food, of which baked beans were a much cherished ingredient, and of all ancient dishes none have stood better the test of time and the caprices of the appetites of the people. But it is a little singular that while New England is so large a consumer of baked beans, and New Englanders, more especially the residents of Boston, have acquired the mystery of cooking them perfectly, the dish is not in much favor elsewhere, and that the knowledge of baking them properly is exceedingly limited. It may be said that one circumstance is due to the other—that is, that where it is not known how to bake beans properly, they are naturally not a popular article of diet. If the method and process of baking were patented, it could hardly be more exclusively held by New Englanders. In New York and other municipalities, a contempt is often expressed for the Athenian love for baked beans, and yet not long ago a fashionable club house, on the occasion of a special gathering, sent by express to this city for 20 two-quart pots of Boston baked beans. This manner of obtaining a dish they affect to despise is frequently resorted to, undoubtedly with profit alike to the buyer and seller. An experienced baker of this city, being asked why baked beans were not as popular in New York as in Boston, said: "Because they don't know how to cook them. They don't soak them enough, boil them too much, and then take them out of the oven before they are half baked." "But it would be easy enough for them to learn how to cook them." "Well, if it is, they don't learn. That much I know."

There is a lunch counter in one of the busiest sections of New York where genuine Boston baked beans are served, which is reported to be doing a thriving business. Travelers in the West and South have noticed in the windows of restaurants in cities and towns placards announcing Boston baked beans, but on entering and eating a dish, find but little resemblance between it and the "home article." Custom has prescribed either Saturday night or Sunday morning as the "correct time" for eating baked beans, and the scene at the baker's then is the busiest of the week. Among the hundreds of bakers in the city there are but few who do not "put to soak"

on Friday night from one to five barrels of beans, which, added to the number cooked in private dwellings, will give one a conception of how well deserving is Boston of her fame as a bean-consuming city. A well-informed gentleman estimates that the consumption of beans in Boston is about 300 barrels per week, or about 10,000 barrels per year. One reason why Boston baked beans are considered better than any others is that almost invariably they are baked in brick ovens over night. Besides baking a quantity to sell, the bakers, for the nominal sum of five cents per pot, receive and take the beans that are prepared by their customers, thus adding materially to their own profit and the convenience of the public. It is a fact certainly not universally known, that there is in Boston an establishment devoted exclusively to the baking of beans, entirely separate from a canning institution. It is the only establishment of the kind in the world, probably, and it is exceedingly doubtful whether it could live anywhere else. At all events, attempts have been made to establish similar institutions elsewhere, and nothing but failure has been the result, and it is now plain enough that a bean-eating community is requisite to support a bean-baking establishment. The success of the Boston bean-bakery was assured from the start, and its enterprising proprietor has climbed up the road to wealth by the bean alone, without assistance from the pole. Every night in the week the fire under the spacious brick oven is in full blast, and two teams are kept busy daily in delivering the pots and their smoking-hot contents. Of the customers of the bakery, fully one-half are restaurant keepers, who pay 20 cents for two quarts of beans, and then retail them at 10, 15 and 25 cents per plate. The bakery consumes from 1900 to 3800 pounds of beans per week, and its oven has the capacity to bake 450 pots in a single night. It is, perhaps, worthy of note that the bakery is located in a fashionable part of the city, within a stone's throw of Washington street. In conclusion, it may be said that the Athenian fondness for baked beans continues to increase rather than to decrease, and that, in spite of what the world may say, Bostonians intend to have them Saturday nights or Sunday mornings.—*Boston Herald, June* 26.

SWINE INDUSTRY.

The following article on swine, from the *Prairie Farmer*, contains some valuable facts:

The proportions which the swine industry has reached within the past five or six years are indeed marvelous. We have hitherto published the figures showing the rapid increase which has marked the history of this branch of business, and need not produce them now; but to indicate its present proportions we may say, in passing, that the estimate of Hon. J. R. Dodge, the eminent statistician, places the number of swine required for the hog products exported from this country in 1879 at 6,000,000. The money value of these products, exported by the United States during the last fiscal year was $79,438,936. The value of the hams which went to make up the aggregate was $51,074,433; of lard, $22,856,673; of pork, $4,867,568; of live hogs, $700,262. Our meats find their way to all portions of Europe, and although it sometimes happens that they meet with a prejudice, born, doubtless of jealousy and close competition, still they are sought for more and more every year. From these figures an approximate idea may be had of the enormous number of swine required to supply the home and foreign trade, and of the important position which swine-raising occupies among our great rural industries.

Our purpose in referring to this matter is to call attention again to the importance of rearing improved stock. It is true that farmers quite generally recognize the fact that "land pikes" and "razor-backs" are a poor investment, and that Berkshires, Poland-Chinas, Suffolks and Essex give far greater returns for the food they consume than ordinary or average hogs of mixed breeds, or no breed at all. The butcher, or the "expert" who buys for the packing-houses, discerns at a glance the quality of the hogs which come under his eye. He selects, without difficulty such as he desires for a particular purpose. He knows that the best hogs of improved breeds give extra choice hams and shoulders for smoking, and that in all respects and for all purposes these breeds fulfill the requirements of the trade far better than animals indiscriminately bred.

In raising hogs, as in other departments of live stock husbandry, the interest of the farmer is to get the most money for his care, labor and feed. It has been shown repeatedly by experiments that well-bred Berkshires and Poland China swine will, under favorable circumstances, produce twelve pounds of pork for a bushel of corn. These instances may not be very numerous, but they show what can be done, and done without much difficulty. From a list of experiments in feeding swine made in several States, the lowest average was five and three-quarter pounds of pork to a bushel of corn fed on the ground, and the highest an average of twenty pounds made by feeding a pair of pigs green corn in the ear. From thirteen experiments made, the average of every bushel of corn was ten pounds of pork. With a good breed of swine properly cared for, five and six-tenth pounds of corn ought to produce one pound of pork, or one bushel of corn ten pounds of pork. This is a better average than is generally obtained, but it is both possible and practicable. Instead of six pounds to the bushel—which is a fair estimate with inferior animals to consume the grain—the farmer ought not to be content with less than ten pounds.

It is not difficult to calculate what one is doing in feeding corn to hogs in the way of returns. If one bushel of corn represents ten pounds of pork, and the price of pork is $3 per hundred the farmer is receiving 30 cents per bushel for his corn, and if pork is $4 per hundred he is getting 40 cents for corn.

These facts are significant in breeding and rearing swine. They indicate the conditions that are required in or to secure the best results—to obtain the most satisfactory returns. To make the most money in this branch of farming, the first requirement is good stock of improved breeds, which can now be had at reasonable prices. It should not be expected that animals of superior quality which possess the desired characters that are found in the improved breeds can be purchased for the same price that is asked for an animal of inferior breeding or no breeding at all. It has taken many years of study and judicious care to develop and "fix" the characteristics which constitute the especial value of improved swine. It is eminently proper that those who have put time and money into this enterprise should receive the benefit of good prices for their stock. And that it pays to buy such stock at good prices has been demonstrated by thousands of farmers from one end of the country to the other.

HOME BRED AND IMPORTED JERSEYS.

If breeders will take pains to obtain the yield of their cows separately throughout the different seasons, by recording the weight of each milking, and at frequent intervals testing the percentage of butter, so that an approximate estimate for the year can be made, they will not only enlighten themselves very much on comparative values in their own herds, but be able to learn, by consultation with one another, how near their best cows approach the highest known standard. Those who can show the highest results for a given strain of blood, have then a powerful argument with practical buyers; and the practical side of the question can soon be made the fashionable side.

The accident of thorough breeding has so often been made to cover a multitude of deficiencies that he is many times quite right in holding back until the more wealthy can offer a clear and indisputable demonstration that the animals offered are not only pure representatives of a superior breed, but that, as breeders, the owners have produced, and are offering, animals that class high in those qualities for which the breed is recognized. I believe that there exist, say fifty cows, and half as many bulls, among the whole ten thousand Jerseys in the country, that are worth all the rest combined for seed stock for the improvement of the general breed of cattle for butter dairying.

Could there be any mode, except test by breeding, for discovering their identity, and the rest annihilated to make way for their full usefulness, one generation's grading would effect greater improvement than it is possible for three crosses to make under the present indiscriminate system. But the poor ones can not be annihilated, except as they are crowded out by better ones. To effect this is a point of the utmost importance to breeders who aspire to be improvers, and in fact is about the only course left them, for the mere handling of Jerseys, as such, is taken out of their hands.

My estimate of the special comparative values which some individuals bear for breeding purposes may seem radical, but the records in other branches of live stock, where not only pedigrees, but tested performances are traceable through a large number of generations, will support the claim, as I will endeavor to illustrate hereafter. In order to breed systematically for the greatest improvement, a certain knowledge of quality must be had, not only of the animal under consideration, but of its ancestors. Not alone is this necessary, but breeders should also be able to form a close estimate of comparison between the tested capacity of the strain he is breeding from and the greatest possible capacity of of a cow of the breed.

It is in this last particular that I think breeders are failing. With all deference to their enterprise and acumen, I believe that very, very few of them have anything like a true conception of the possible achievements of a Jersey cow, and that, for want of certified evidence on this point, are contenting themselves with breeding material far below the true standard at which they should aim.

That such should be the case is not strange. The field is yet a limited one, and has not been systemized. It is human nature to give great weight to personal experience, and ignore that claimed by others. "What, in your opinion, is the greatest possible yield of butter that a Jersey cow is capable of for the period of one week, at her best?" is a question that I have asked a great many breeders. The variation in the replies has been so great as to show conclusively to my mind that no accepted standard has been effected. Furthermore, the more moderate estimators quietly shrug their shoulders and look incredulous when told of far greater yields than their own cows have shown. "He is honest enough in his belief, but (in a whisper) his help has deceived him."

Now, what is to be done in such a state of affairs? Manifestly at the present stage of the interest it is a fact, unpalatable though it may seem, that breeders of Jerseys, with the most laudable cause to back them, are not one-half as well posted in their vocation, and hence not as able in their achievements, as the breeders of race horses and trotters. They show less directness in sifting the wheat from the chaff and establishing a high standard. It seems to me this might readily be accomplished by organizing a system of certified tests to be kept in record, so guarded that the public could place reliance upon their correctness, in order that the best cow may not necessarily belong to the greatest liar. Nor should this be confined to good Jerseys alone. Let all compete who pay the fees. The *Herd Register* vouches for purity of breed. The test record should award indiscriminately, so that out of accumulated records a butter breed of the greatest possible capacity may be established, whether purely of one now recognized breed or not.

No butter breed can rightfully claim the highest possible attainments of breeding as long as its grades almost uniformly beat its pure-breds. This is now the case with Jerseys; but under a system of breeding enlightened by a wider knowledge of direct selection, I presume a standard could be reached within the limits of the *Herd Register*, upon which a flaw in pedigree would as uniformly mean a reduction in yield. If, on the contrary, a standard should prove finally to be composed of a high mixture of Jersey with Guernsey, Holstein and native, (after the manner in which the English race horse was formed from Barb, Arab, Turk and native,) the country would be none the worse off.

The butter cow is the thing that the country wants; and elevated to the highest standard, and disseminated over the dairy regions of the United States, millions would not write her value. She can be bred to that perfection that, by four crosses of her blood, 200 pounds yield per cow can be added to the present annual average of the dairies of the country. I am not too sanguine. Then let the toast be: "The butter cow: may she prove a Jersey, but whether a Jersey not—The Butter Cow."

HANDLING SHEEP.

A correspondent of the *Indiana Farmer*, who has had long experience in handling sheep, thus writes:

I will start on the first day of September, and give you my mode of handling one hundred ewes for one year, and will apply to any number in the same ratio. Put one buck to each twenty-five ewes the first of September, and no more; put each twenty-five to themselves. Now this number will apply to all long-wool sheep, but one hundred Merinos will do better together than twenty-five long wools. Breeding those ewes as above mentioned will bring your lambs about the first of February, which is the mildest month in the winter, and if I save seven in ten I am satisfied. If corn stands up well I put my sheep in the corn field. They will do no harm through September and October, but a great deal of good to some men's corn. This change will give blue grass a good start for winter. Now please prepare a good shed or barn that will hold twenty-five comfortably, say ten to twenty at least; litter it with good dry straw, and allow them to walk in and out at will. Don't close them in till they commence lambing, then only in nights and stormy days. Feed clover hay in a square box-rack three feet high and three feet wide, running the whole length of the shed, with second plank out from bottom to admit their heads. Never feed corn except in frozen weather; then half an ear to a sheep, with husk on, is sufficient. This brings us to lambing time. Close them in every night after they commence lambing with good dry straw about knee deep; give a small amount of salt mixed with sulphur once a week—old Kanawha salt—as all other kinds of salt have a tendency to scour stock of all kinds. I call the attention of farmers to this important fact. I presume this treatment brings us up to the fifteenth day of April, with as many lambs as I have ewes. I now prepare for myself a bucket of old-fashioned North Carolina tar, some sulphur and lard mixed, a chisel and a mallet, with a good solid square block to dock on. I select my best bucks first that I intend to save, bring them to the block with their feet down, back them square on this block, set the chisel on the second joint, hit it one lick, put a little tar on the stub, a little sulphur and lard right under the arm-pits to drive away ticks, and you are done with that lamb till weaning time. At this time I tag the ewes; make a rack like a saw-buck, line it with thin plank, place the ewes in carefully on their backs, and tag every sheep, whether they need it or not. If you don't they will need it before shearing time. Keep them on the same pasture till shearing time, and smear all their noses with this good old tar. It is the most healthful thing in the world for sheep. Don't shear till the first of June. By this time the eke will be melted and mixed all through the wool. It will weigh heavier and give it more life. I wean my lambs the 1st day August, sell off my surplus and make a calculation on the profits. My profits on 100 ewes the last year was $680 for wool and lambs. I sold eighty lambs at $4 per head, and twenty yearlings at $8 per head, to Mr. Oakley Purcell, of Marion county.

I am buying No. 1 Cotswold ewes at ten dollars per head. I have an ambition to have one hundred of the best Cotswolds in Rush county, but I doubt whether I can make 100 per cent. on the ten dollar ewes as easy as I did on five dollar ones last year. The most and quickest money on sheep is on common ewes with a thoroughbred buck. I am testing four kinds, and will soon be able to to give the results.

As to the gad fly—bore holes with a two-inch auger in logs or stumps and fill with pure pine tar, put a little salt on top the tar, and you can smear a hundred sheep's noses in five minutes.

To feed sheaf oats, make a running noose in a twine string, put it around three or four sheaves, hang on a nail or peg just high enough to reach in cold days, nothing better.

Sell the sheep that lag behind when you call them up. Give them all access to water, summer and winter.

Select when you buy, and select when you sell; you never can keep a flock up any other way.

Learn to tell their ages by their teeth; no man can be a successful sheep handler till he learns this.

THE LUMBER TRADE.

The fine pine and oak lumber, which was once to be found in great abundance on the hills and mountains along both branches of the Susquehanna river and tributary streams, is fast disappearing, not only under the lumberman's axe, but in consequence of the great fires which almost every year sweep through the woods in which fine young timber is growing. Col. Noyes, the recent State Treasurer, who has been in the lumber business in this State since 1847, states that when he first sought the lumber region on the North Branch of the Susquehanna, the finest kind of timber was to be found in Tioga and Bradford counties, and along the Chemung and Tioga rivers, and Pine Creek, flowing into the West Branch at Jersey Shore. At that time the product throughout the region amounted to about 250,000,000 feet of lumber per year. The mills were located along the streams where the timber was easily to be had, and all sawed into boards and rafted during the freshets, principally to Columbia, Pa., and Port Deposit, Md., the two great distributing markets.

When the boom was erected at Williamsport in 1853, and a few years later at Lock Haven, a change took place in the business. Instead of great rafts of lumber being floated down the river, logs were pushed into the stream, each having the owner's mark upon the end, and were caught by the booms, and were subsequently sawed into lumber in the great mills that were erected at Williamsport and Lock Haven for the purpose. These booms have received annually for a number of years past about 300,000,000 feet, and, after sawing the logs, shipped the lumber by rail and canal to various parts of the country.

When it is stated that at least 100,000 acres of woodland have to be gone over each year to obtain this large quantity of lumber, it can readily be seen that not many years are required to go through the entire lumber region, but, of course, the land is not entirely stripped of trees. When the woodman enters the virgin forest, the best and most accessible trees are cut, and in a few years the same land is gone over again, and the remaining trees are felled.

The best timber now cut is found in Clearfield, Indiana, Cambria, Clinton, Cameron and Potter counties, and in Clearfield, Indiana and Clinton the best square timbers are obtained. The business of sending square timber to market is distinct from the other. The logs are cut in leugths from 40 to 80 feet, then squared and rafted to market, the principal points being at Lewisburg, Northumberland, Millersburg, Harrisburg, Middletown, Columbia, Philadelphia and New York. The timber is principally used for the manufacture of cars, ship work, coal chutes, &c.

In additiou to the pine lumber sent to market great quantities of hemlock are being cut into flooring boards, girders, joists, &c. There are still many tracts of land on which hemlock grows in great abundance, but the waste here is also very great. The establishment of large tanneries in these regions makes a great demand for bark, and in some places the timber is cut down, the bark stripped from it, and the log left to rot upon the ground. With this waste, together with the large quantities cut every year, as well as the destructive fires, it is not difficult to see that but few years will elapse before Pennsylvania will be stripped of its fine timber.—*Philadelphia Ledger.*

A FIERCE COMBAT BETWEEN A CAT AND A RATTLESNAKE.

About three weeks ago, during the beautiful sunny weather we have had, which induced the trees to bud and bloom, I was walking in my garden one morning, thinking about preparing for an early start of spring vegetables, when I saw a large rattlesnake sunning. My first impulse was to go to the house, get a gun and kill it, but looking around I saw a very large house cat cautiously creepiug upon the reptile. Anticipating a fight, and equally desirous of getting rid of the cat, which killed chickens, I concluded to witness his attack upon the snake. The cat crawled upon his stomach, pulling himself along on its feet, whisking its tail from side to side, and every now and then stretching its neck to view the snake. Wnen about eight or ten feet off, the snake suddenly coiled up, sprung its rattle, faced the cat and darted its forked tongue out rapidly. The cat commenced a rapid circle around the snake, so fast in fact that the eye could hardly keep up with it. At last it got near enough and made a dart at its enemy; through providential reasons it went high above the snake, which also struck at the cat, thus breaking its coil. The cat went too far and by the time it had turned to face its foe, the reptile was again coiled and ready for the attack. The same method was adopted and carried on for four or five times, occupying at least half an hour. The cat wished to catch the snake, but seemed aware that if it missed the neck it would be certain death. At the sixth assault they met, and instantly the snake was wrapped in several folds around the body of the cat, which used its sharp claws with deadly effect. The cat had been bitten on the head and neck several times, and both continued to fight. The snake was torn nearly to shreds, but did not unloose its coil around its victim. The poison was swift and deadly, but before the cat died it caught the snake's head in its mouth and crushed it, and fighting they died, the snake enwrapping the cat in its coils. The snake measured four feet eight inches, and had thirteen rattles.—*Americus (Ga.) Republican.*

The value of the whole export of wheat from the United States for the ten months ending April 30, aggregates $157,382,000, against $108,918,000 for the same period of last year, showing an increase of $48,464,000. The average price of Western wheat at seabord points has averaged $1.25 per bushel for the period, against $1.07 for the same time of 1878-79—showing an increase in price of 18 cts. per bus.; while California wheat has averaged $1.15, against $1.03 the preceeding year, a rise of only 12 cts. per bus. Western flour has averaged $5.94 per barrel against $5.27 the preceeding year—an advance of 67 cts.—while the rise on California was only 21 cts. The rise in flour, it will be observed, has been in the same proportion as that of wheat.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The Lancaster County Agricultural and Horticultural Society met statedly in their room in City Hall, on Monday afternoon, July 12th.

The following members were present: S. S. Rathvon, city; S. P. Eby, Esq., city; W. F. Griest, city; C. A. Gast, city; Joseph F. Witmer, Paradise; Johnson Miller, Warwick; M. D. Kendig, Manor; John H. Landis, Millersville; F. R. Diffenderffer, city; Calvin Cooper, Bird-in-Hand; W. D. Bollinger, Warwick; W. H. Brosius, Drumore.

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

John J. Martin, of Manor township, was elected a member of the society.

Mr. Cooper said the grain crop was rather short. Oats was poorly filled and hardly worth cutting. The corn crop and tobacco crop looked promising, although wanting rain. The apple crop promises to be fine, although not so large in quantity as formerly. Potatoes will likely prove a partial failure. The young clover looks very sickly, wanting rain very badly.

Mr. Kurtz reported the wheat crop in his section to be very good, but the grain was rather small. He attributed this fact to the drought when it was in blossom and filling. The corn looks well, but is sadly in need of rain. The tobacco crop also promises well. Clover and timothy do not promise very well. The army worm has disappeared from his section. Grasshoppers are plenty and in some fields have done great damage to the tobacco and corn.

Mr. Bollinger said the oats crop would be an average one. The corn looks better than he had ever seen it. Potatoes will be good; tobacco is rather short, and the insects are already commencing their devastations. The young grass looks very badly. The fruit looks very healthy, although apples will not be so plenty as formerly.

Mr. Landis said the corn in his section of the county looked remarkably well. The tobacco also looked well, but the oats would be very short in the straw. The clover looks very sickly, and in some fields is dying out. He thought there would be a very fine crop of apples. The peach crop would also be good this year.

Mr. Kendig said the grass crop was very bad all over the country, but particularly so in his section. He asked if there was any remedy for this.

Johnson Miller said the report for the upper end of Warwick township was about the same as that reported by Mr. Bollinger. The grass crop was rather slim.

Mr. Witmer said his clover was right well set and looked better than it did a year ago. The apples appear to be abundant, but the peaches are not so plenty. In reference to the wheat crop he would say that the grains are very small.

Dr. Rathvon said 3,000 copies of the premium list of the coming Fair, had been printed free, 200 of which had been sent to each of the managers, except Mr. Huber. He distributed 150 copies himself. He thought it would be time enough to distribute them next month.

A motion was made and carried that the members of the Board of managers distribute the premium lists at their own expense.

A communication was read from the former treasurer stating that he would render a full and complete report of all moneys in his hands at an early date.

Mr. Kendig, to whom was referred the question as to the best time to cut elders and briers, to destroy them, said the best plan he knew was to cut them down as soon as they appeared.

Mr. Eby cited an instance of the destruction of the Canada thistle in two years. He said the patch was cultivated the same as corn, and then as often as they came up they were cut down.

Mr. Landis said he dug the thistle out and filled the holes with salt for five or six years, but still they were present.

Mr. Miller said he saw them cut off and salted them, and finally they were totally destroyed.

Mr. Eby said in reference to destroying elders the best plan was to cultivate them with a harrow, and cut off the roots, and they would finally die.

Mr. Witmer said he had been troubled with briers, and he ploughed them thoroughly about the time they had attained their full growth.

Mr. Cooper thought a good plan was to pull them up after plowing in the spring. This was an easy method, and would bring a good result.

Upon the question of "Strawberries and their Culture," John H. Landis read the following paper:

Of all our garden fruits the strawberry is probably the most fragrant and delicious. In consequence of these elements of popularity it ever finds a ready sale in the markets. The profitableness of growing it has encouraged our fruit-growers to take more than ordinary pains in endeavoring to improve it by creating new varieties. Through these efforts on their part they have succeeded in originating varieties of greater size, richer flavor and juiciness. I do not propose to undertake to teach anyone, much less the experienced horticulturists of this society, how to successfully raise the strawberry, but will endeavor in my own way to tell a few things I know about strawberry culture.

The word strawberry originated many years ago from the then known custom of laying straw under the fruit when it was about ripening. What their prime reason was for doing so I am not prepared to say, but I presume it was done for the same reasons that it is done now, which are, in the first place, to keep the berries clean from sand and earth; secondly, they are more readily picked; thirdly, they are not near so apt to rot, especially during damp or wet weather; and, fourthly, it will choke up and keep down grass and weeds in the immediate proximity of the plant. I put cut straw around my plants in the spring. I cut the straw with the cornfodder cutter. Sawdust or tan, if either can be gotten, would answer the purpose and in some respects would be preferable to straw.

The soil for successful culture should be of the best quality. Above all things else a good soil is an essential requisite for successful growing. The western growers prefer a hard, tough soil. It does not matter so much as to what kind of soil it is in other respects only so that it is rich soil. Different varieties appear to be adapted to a certain extent to different soils. Frequently one fruit grower or nurseryman recommends a variety which another stoutly condemns. One variety appears to do best at one place and another at another place. Without a trial I think it is impossible to tell which variety does best at any one place, but all varieties require a rich soil and a deep soil, for the roots of the strawberry run down deeper than most people imagine.

Plants are raised from vines commonly known as runners. From a few dozen plants a very large number of young plants can be raised. From one plant as high as fifty young plants have been grown in a single season. The plants should be set in rows three feet apart and about fourteen inches apart in the rows. In planting there is nothing of so much consequence as to have the plants firmly set. There is no danger of the earth being too firmly pressed around the plant. Care should be taken, however, that the eye is not covered. The time of planting may be in early spring or in August. Spring planting I think is preferable, from the fact that then the ground is more moist and wet, and consequently the plants can be gotten to grow with less trouble. I would suggest planting as soon as the ground was dry enough to work it properly. August planting may do very well if you take the time and trouble necessary in assisting the plant. It is the hottest and generally the dryest part of the entire year, and hence the soil is most times too dry for planting without the use of water. In planting, after you make the hole into which you propose to set the plant, pour two or three gills of water before you insert it, and then quickly press the earth firmly around the roots. This can be done successfully no matter how dry the season is, only it requires more attention, more time and more labor.

A special effort should be made to keep the bed or patch as from weeds as possible. The nourishment the weeds take out of the ground the plants are robbed of, and they otherwise retard the growth and affect the health of the plant.

As is the case of other plants, the more liberal the application of manure the more bountiful will be the yield of fruit. There is a difference of opinion relative to to the kind of manure, the application of which will have the most satisfactory effect. Most any manure or fertilizer I should think was beneficial. Lime by some is made an exception. It has been said that the application of lime to a strawberry patch is more of an injury than a benefit. Stable manure, compost, wood ashes, or chicken droppings can all be used to advantage. An occasional application of guano it is said produces very satisfactory results.

In the fall, before the ground freezes, the plants should be mulched with straw, sawdust, forest leaves or strawy stable manure. This will serve as a protection to the plant and prevent it being thrown out by the frost. Strawy horse manure will serve as a splendid top-dressing and would serve both as a protector and a fertilizer, but great care must be taken lest it be put on too thick and smother or burn the plants.

In Santa Clara county, California, strawberries are cultivated more extensively than anywhere on this continent and probably in the world. They are raised principally for the San Francisco market. Twenty and thirty acre fields are common there. Last August I spent several days on the farm of Mr. W. A. Z. Edwards, near San Jose, Cal., who had an eighteen-acre field in strawberries. Mr. Edwards told me he frequently finds berries in his field, that measure seven inches in circumference one way and five inches in circumference another way. The kind he grows mostly is the variety known as "The Monarch of the West." Berries of this variety have been found to be three inches in diameter. The fields in their third and fourth years yield from 4,000 to 6,000 pounds per acre. The wholesale price in San Francisco is six and seven cents per pound, making a gross yield of from two hundred and forty dollars to four hundred and twenty dollars per acre. As high as sixty or seventy thousand pounds are received daily in San Francisco during the strawberry season.

Large yields are also reported from different parts of the East. Mr. Israel Bennis, of Levant, Maine, during the season of 1869, raised on twenty square rods of ground 590 quarts of Wilson's strawberries, which he sold at twenty-one cents per quart, amounting to $123.90.

Hon. William Parry, a prominent fruit grower in New Jersey, has grown over 200 bushels per acre in a season, which were sold at ten cents per quart, amounting to over six hundred dollars.

There is no reason why they should not be grown profitably anywhere in our part of the country, and it would be highly desirable to see more of our farmers and fruit-growers take an interest in their cultivation. They are one of our most delicious fruits, and they can undoubtedly be profitably grown. In conclusion I must simply repeat with special emphasis, that *care in planting, freedom from weeds, liberal and prudent fertilizing* and *good soil* are essential requisites for the successful cultivation of the strawberry.

Mr. Cooper said the plants, if taken young enough, could be transplanted with perfect safety on well-cultivated ground. In winter he would cover the whole plant, and for this he said cornstalk manure was the best.

The following question was referred for next meeting: "What is the best mode of transplanting trees—should they be watered, and in what way?" Referred to Calvin Cooper.

Messrs. Cooper, Eby and Landis were appointed a committee on nomenclature.

Mr. H. M. Engle laid on the table of the society a number of fine specimens of peaches of the following varieties: Saunders, Downey, Wilder, Amsden, Rivers, Cumberland, Louisa, Briggs, May, Beatrice, Musser and Alexander.

Mr. Cooper exhibited a fine specimen of Red Astrachan apple, of good size and fine flavor.

On motion, adjourned.

LINNÆAN SOCIETY.

The Linnæan Society met at 2 o'clock P. M. on Saturday, June 26, in the ante-room of the Museum, President Prof. J. S. Stahr in the chair, six members and one visitor in attendance. After organization, and the usual preliminary business, the following donations to the museum and library were made:

Museum.

1. A female "Red" or "Northern Bat," and three young, were donated by Mr. W. E. Lant, of 219 East King street, Lancaster. These were the *Vespertilie noveboracensis*, and were interesting on account of the triplicate occurrence of the offspring, the bat being a *binammated* animal.

2. An alcoholized "Tadpole" of a species of *Rana*, or frog, that had been kept in an aquarium all last winter, and only died about ten days ago, without having increased in size, or shown any advance in development since November, 1879.

3. A bottle containing specimens of the "army worm" that infested the wheat fields of Lancaster county the present season, from Messrs. Shreiner, of Petersburg, and Hershey, of Manheim. These worms are becoming considerably varied; those from the wheat fields being much darker in color than those now found in a field of Mr. S. S. Spencer; therefore their identity can only be determined from the appearance of the moths bred from them.

4. A bottle containing a large specimen of the "Millipede" (*Spirobolut Marginatus.*) This is the largest species of *Myriopoda* found in Lancaster county, and feeds on vegetation. "Centipedes" feed on animal substance, have a less number of feet, and their bodies are flattened. They are also swift runners. The former are injurious to vegetation, but the latter innoxious, and may be regarded as friends; but when large they should be "severely let alone," as they are apt to defend themselves.

Library.

1. A copy of *Genesis* and *Exodus*, a spelling book, and four tracts, all in the Burmese language, donated by Miss S. S. Lefever.

2. Numbers 22, 23, 24 and 25, of the *Official Gazette* of the U. S. patent office.

3. Educational Bulletin, from the Department of the Interior.

4. LANCASTER FARMER for June, 1880.

5. Sundry catalogues and circulars.

Microscopical.

Dr. M. L. Davis presented five mounted specimens of insects—namely, one each of *Epitrix cucumeris et pubescens*, one of *Symntharus hortensis*, and two of a very small undetermined *Hemipter*, all of which infest the young tobacco plant.

Papers Read.

Mrs. Zell read a paper on the "red chickweed," accompanied with the plants in bloom. This is a

species of *Stellaria* and belongs to the great Pink Family (*Caryophillacea*) and contains the active principle of Doctor Stoy's celebrated remedy for hydrophobia. It is a common plant in fields and widely distributed over the greater portion of our country. It is often used as a relish to caged birds, and canaries seem to be especially fond of it, both when it is young and crisp and also when it is in fruit. Dr. Rathvon read a paper on some of the peculiar characteristics of bats and their relation to other animals in scientific classification. Although this much despised animal has been regarded as a mongrel—"between a bird and a beast"—yet, in its physical structure and anatomical affinities, the *Quadrumana* is the only one that separates it from the order *Bimana*, which includes the various races of *man*. But as an important element in the economy of nature the bat performs no useless part. All the species in our country are purely insectivorous, and take their prey while on the wing, in the evening and early part of the night. Many thousands of night-flying insects fall victims to their voracity every night, and a colony of bats would do more in "cleaning out" the moths of the various army worms, cut-worms and apple codlings than any remedy that could be devised by man. If bats are an evil they they are a *permitted* evil for the *prevention* of some greater evil, the length and breadth of which is not comprehended by our limited philosophies.

Under "Scientific Gossip," views were inter-communicated, ideas suggested, and general "talks" indulged in, during which it was rather deplored that there are few who take an active interest in natural history—that is a *working* interest. The field is white, but the active laborers are few. The society then adjourned to meet on the last Saturday in July.

AGRICULTURE.

Stone Boats.

At no time in the year, are stone boats so much in request as at this season, when there are so many heavy things to carry to and from the barn and field. The harrows, plows, bags or barrels of grain, and fertilizers, with other things that are often taken across plowed ground, are best conveyed on a stone boat. Every farmer should have one or more of these low and handy vehicles, which costs but a trifle for lumber and bolts, and can be made in the shop on a rainy day. All things considered, the kind made from two-inch plank, sawed with an upturned end, is as good as any. When the boat is not in use, it should be placed on two timbers, or tipped on edge, so that the bottom may not rest on the earth, and thus be kept from the wet, and preserved from otherwise rapid decay.—*American Agriculturist.*

Farm and Garden Notes.

Do not neglect to kill the weeds. Persevere through the whole season. Harrow soon after the crops are planted, and again soon after they are up. Cultivate often. Hand-pull those that escape the implements. Give horses and laborers a good rest at noon; an hour and a half taken for that purpose in the middle of the day will not be too much. Noon feed for horses should be of cut hay or straw and meal mixed June butter is the sweetest and best of the year. Keep the finest calves, and raise them to make dairy cows of. Feed the ewes daily a handful of mixed bran and crushed oats. This will increase the flow of milk and help to make fine, large lambs. Pasture swine in the orchard, and manage so that there is some green crop there for them to feed on. Clover alternated with rye is good. Pigs in an orchard help to destroy and keep off insects. Spring pigs that are to be killed for market in the fall should have as much grain or boiled potatoes as they will eat. Give plenty of fresh water. Feed regularly night and morning; neglect of these precautions causes hog cholera. Tools that will not be needed should be stored away in good repair. Oil at the bearings, and tighten nuts and bolts. As fast as one crop is harvested manure the ground, spade or plow it, and plant some other crop. Dig up the dock from the fence, to keep the seed from being blown about the fields. When mildew appears on gooseberries or currant bushes, use sulphur freely; if attacked by worms, use white hellebore. Mulch heavily to prolong the ripening, and keep the soil loose between the rows and around the bushes. Put a dressing of well-rotted manure over the asparagus beds, and turn in with a fork. Set out plants for a late cabbage crop. Use the thinnings of beets for greens. Keep the celery beds free of weeds and thin out. Transplant previous to the final settlement early in July. Sow cucumbers for late crop and for pickling. Rutabagas may be sown as late as the 15th of July. Until the young plants push out the rough leaves, dust with fine guano to keep off the flea. Sow fodder for soiling up to the end of July, in drills thirty inches apart, seed an inch apart in the drill. Remember the weeds in your potato crop evaporate moisture from the soil, and take much from the soil that is needed by the crop. Pull the weeds by hand when too late so be killed by cultivation. Much waste on the farm comes from the careless handling of grain. See that the bands are strong, and shocks well put and carefully wrapped. Give the lawn frequent mowings.

Mixed Farming.

Until our country is settled up, and the virgin fertility of the new soil is beginning to be exhausted we cannot hope for that safe and solid foundation for our agriculture which comes from mixed farming. When every farmer comes to that point when he knows that his land is a medium through which crude fertilizing elements pass in becoming food—vegetables, fruits, grains, flesh—he will feel the importance of a variety of products—a rotation of crops—and the value of animals in the economy of the farm. As our country grows older, farmers will from necessity be more thorough students of their professions.—*American Agriculturist.*

Preserving Timber.

There are several compounds used for preserving timber. The process called Kyanizing, invented by a person named Kyan, consists in saturating the timber with Bichloride of Mercury (Corrosive Sublimate.) Salts of Copper have been largely employed. Creosote is now, perhaps, the most generally used preservative. The principle is the same in all cases; to change the albuminous matter in the wood—that part which is the most suseeptible to decomposition.

Experience with Canada Thistles.

F. Bacon writes from Lake county, Illinois, essentially as follows: "Eleven years ago I bought my present farm, and upon it was a patch of Canada Thistles covering about 13¼ acre of land, bordering on a slough. It was so boggy and rough that it was impossible to mow them, even with a scythe, so they had yearly to be cut with hoe or spade, making the job an expensive one. Having the slough first well drained, I plowed the piece—through the summer of 1878—plowed, harrowed, or cultivated, every time a green plant appeared. On the first part of September I gave the field a thorough plowing, harrowing, and rolling, and sowed broadcast, by hand, 2½ bushels of winter wheat. Having just threshed, I give the result, which was 91 bushels machine measure, weighing 66 lbs. to the bushel. I had one load of rakings that was threshed with spring wheat, that I have no doubt would have made 5 to 8 bushels more. Every part of it was lodged, and consequently there was a great deal left on the ground. I have no doubt that there were 100 bushels grown on the ground, and not a thistle has been seen since." But was this really the "Canada Thistle?" The ease with which it was subdued makes us suspect that it may have been some other thistle.—*American Agriculturist.*

Destroying Weeds.

Every ouee in a while we read that the way to destroy noxious weeds is to haul loads of earth and cover the places where the weeds grow a half a foot or so deep. Sometimes these instructions are varied so as to read rubbish instead of earth, and then again rubbish is defined as straw, cornstalks or even brush. Now, we have no doubt in the world that weeds can be destroyed in that way. We know that weeds are to feed on air, and all that sort of thing, and that if they are smothered they can't breathe, and if they cannot breathe they die. All this is so plain to the thickest skull that one may feel perfectly safe in recommending it as something that will surely do. And yet we would like to know how many who recommend it have ever done so, or seen their plan tried by others? We very much doubt whether it was ever done. Some one may have noticed that under a brush-heap everything was killed, and that after remaining a year the brush-heaps's removal would show the spot bare of all vegetation. If the recommendation ever had any ground at all it was surely this.

Our remedy for noxious weeds is thorough cultivation. If a piece of ground is full of briers, milkweed, couch-grass, sodom-apples, Canada thistles, sorrel, toad-flax, or other miserable stuff that so often tries the mettle of our good farmers, let them put the ground in corn for a couple of years or so, keeping the cultivation going continually, and especially going in the earliest part of the season, and the toughest character among these weeds will fail to stand the ordeal. If the hand-hoe can be spared to go in among the hills of corn occasionally, where the teeth of the harrow cannot reach, or to cut off here and there one which the harrow may miss, a bad case may be cured in a single season. But if this cannot be done a couple of successive years with a sharp-tooth cultivator among a corn-crop will generally do the business for the worst case that ever was.

Let anyone who has a weedy field before him resolve another season to put the whole tract in corn and keep clean, and he will soon give up all the common ideas of smothering-out with deep layers of earth, cutting up in the full of the moon, putting salt upon their tops, or the many other recommendations started in the interest, it is believed, of laziness, but which really calls for more trouble and hard work than a thorough and systematic cleaning, such as we have indicated, does.

Cultivation of Tobacco in Cuba.

The tobacco is planted from the seed. The soil being pulverized and enriched with manure, the seed is sown broadcast, and the plant having grown to a height of eight inches, it is set out in rows about two feet apart, when it has much the appearance of corn planted in this country. In Cuba great care has to be exercised in guarding the seedlings from the tobacco worm. This is the only insect enemy the plant has, for it is so astringent and bitter that nothing else will touch it; but so destructive is the worm that if not looked after closely it will in a single night destroy an entire plantation. As the worm conceals itself during the day it is customary for the planters' hands to go forth by night with lanterns to destroy the pest. The tobacco having grown until the leaves are fully developed, the first cutting of leaves takes place; these first cut leaves are the largest and finest. The plant is afterwards allowed to grow until there is a second supply of smaller leaves, which are also cut. The leaves as they are cut are carried to the tobacco houses on the plantations, where they are exposed to dry by the action of the air, which process occupies about six weeks. They are then piled in layers, each layer being sprinkled with a liquid called "betun," which is a strong lye made by soaking tobacco stalks in water. The heap of tobacco, or "pilon, as it is called, is covered with banana leaves and allowed to ferment for a couple of weeks This curing process being completed, the tobacco is selected and graded according to the size of the leaf, the largest leaves and those finest in color and quality being used for wrappers and the smaller for filling cigars.

HORTICULTURE.

Thinning Fruit.

Whenever we tell a friend he should thin his fruit he talks about the curculio, the codling moth, the birds and the boys, and "guesses there will be thinning enough before the season gets through." This is true in its way. Wherever these troubles exist to any great extent it is not much use to grow fruit at all. But there are some who do not leave all their gardening to insects and vermin—some who dispute the right of these pests to interfere at all, and wage war, successful war, against them; but even these do not half appreciate the value of thinning their fruit.

The evil of overbearing is particularly apparent in dwarf pears and grapes. As a general thing there is rarely a grapevine but would be benefited by having half its bunches cut away, and some of the free-bearing dwarf pears might have from one-third to one-half. The grapes may be cut away as soon as they can be seen; but the pear should be left until somewhat grown, as they often fall after they are pretty well advanced. It not only helps the size of the fruit left, but is a gain to the future health of the tree.—*Germantown Telegraph.*

Small Fruits.

With the exception of one or two strawberries and grapes, there is quite a diversity of opinion as to the varieties generally to cultivate with growers coming from different sections of country, though not distantly separated. They will argue with great earnestness and confidence for their specialties, and with the facts upon their side so far as this or that variety concerns their particular neighborhood; and they are convinced to the contrary only after becoming familiar with the worthlessness of these selfsame varieties at other points where the soil and atmospheric influences are different. Even here in Germantown while in some gardens one strawberry or raspberry will give the highest satisfaction in another, but a few hundred yards off, it is next to a failure.

It was particularly so with the Delaware grape, which is the best grape, when it can be grown, ever raised in the open air. From its first introduction we condemned it on account of its small size, its tardiness of growth, its meagre crops—and on this account for the extortionate price demanded for it. We were among its first producers, and after waiting for years to get some fruit, we found the berries no larger than a big pea; also that it was a sparse bearer and rather smaller than upon other premises. Taking our cue from this experience, we disapproved of the variety, and had a whole fortress of hot-shot poured in upon us from the West, where the vine did much better and where the sales went on steadily. But where is it now? What has Eastern Pennsylvania to show for its fifty thousand dollars spent upon it? And how stands the Concord grape, which on its introduction was so roundly condemned by the Delaware champions? Why, it is the grape of the million, as we said from the beginning that it would be, and we think that it will continue to be so for another generation to come.—*Germantown Telegraph.*

Tomatoes.

A common mistake in the cultivation of this plant is to imagine that it requires an enormous space to perfect its growth in. Of course, if it is allowed to wander at its own sweet will, it will occupy a great deal of ground. But this is not at all the best way to get *ripe* fruit, though any amount of leaves, stalks, and *green* tomatoes may be produced by it. Please give the following plan a fair trial: Set the plants in rows two feet apart, and fifteen inches between the plants in the row.

When the first bunch of buds has fairly made its appearance, nip off the whole of the shoots growing between the stem and branches; but allow the main stem to grow on until four or, at most, five bunches of buds are formed. Then, the plant being, probably, about three feet high, pinch off the main stem about three inches from the highest bunch, and continue to nip off the shoots, as before, as fast as they make their appearance; just as in the culture of tobacco.

If this is properly done, the greatest amount of ripe fruit that the climate is capable of producing will be secured. Stakes, about four feet long, will be required to tie the plants to. They should be driven firmly into the ground and the stem should not be too tightly bound. I have practiced this mode of growing tomatoes for twelve years, and have never failed to obtain an early crop of well-matured fruit. Keep the ground well stirred and mulch with half-rotted dung. Lots of liquid manure.—*Cor. Journal of Agriculture.*

Cultivating the Raspberry.

After all said and done, there is no small fruit so certain in its crop and altogether so wholesome as the raspberry. With any kind of decent attention it will not disappoint the grower, no matter what the variety may be. It is true that it should always be pruned and laid down in November, ready for taking up in the spring without anything more to do with it than tying the stakes. These stakes may be almost of any kind and can almost always be furnished on the premises—such as pieces of boards split off, bean-poles that have become too short by the ends rotting off, and supports obtained from pruned branches from trees. Do this and one is sure of getting a good supply of fruit. When the canes are done bearing cut them out; and when November comes prune the new wood and lay down as before.—*Germantown Telegraph.*

Domestic Economy.

Milk and Lime Water.

Milk and lime water are now frequently prescribed by physicians in cases of dyspepsia and weakness of the stomach, and in some cases are said to prove very beneficial. Many persons who think good bread and milk a great luxury, frequently hesitate to eat it for the reason that the milk will not digest readily; sourness of the stomach will often follow. But experience proves, says the *Journal of Materia Medica*, that lime water and milk are not only food and medicine at an early period of life, but also at a later, when, as in the case of infants, the functions of digestion and assimilation are feeble and easily perverted. A stomach taxed by gluttony, irritated by improper food, inflamed by alcohol, enfeebled by disease, or otherwise unfitted for its duties—as is shown by the various symptoms attendant upon indigestion, dyspepsia, diarrhœa, dysentery, and fever—will resume its work, and do it energetically, on an exclusive diet of bread and milk and lime water. A goblet of cow's milk may have four tablespoonfuls of lime water added to it with good effect. The way to make lime water is simply to procure a few lumps of unslaked lime, put the lime in a stone jar, and add water until the lime is slaked and of about the consistence of thin cream; the lime settles, leaving the pure and clean lime water on the top.

Summer Drinks.

A great deal of harm to health and many deaths result, as everybody knows, from injudicious use of cold liquids to quench thirst during our blazing summers. Persons exposed to the heat, especially those hard at work, cannot, or will not, refrain from drinking, for they feel the need of supplying the waste from copious perspiration. What, then, shall they drink? Water seems, under the circumstances, to be inadequate to the wants of the system. It passes through the circulation to the skin as through a sieve, and flows over the surface in streams. A big drink of cold, or even cool, water on an empty stomach is very dangerous; it is liable to produce sudden death. The danger may be avoided, it is said, by putting farinaceous substances, particularly oatmeal, into the water to be drank by laborers, the proper proportion being three or four ounces of meal to a gallon of water. Why oatmeal should be better than rye, millet, buckwheat or cornmeal cannot easily be determined, but those who have used oatmeal, especially firemen, coal-heavers and the like, say that it gives them greater endurance and increases their strength. This may be a mere notion, but the peculiar aroma of the oats may be so associated with an agreeable stimulation of the alimentary mucous surface as to promote complete digestion. The meal appears to fill the blood vessels without increasing the cutaneous exhalations. Workmen who have tried acid, saccharine or alcoholic drinks as a substitute for the oatmeal drinks have invariably expressed unsatisfactory results. Water with oatmeal seems to be by all odds the most wholesome and desirable summer drink for manual laborers.

How to Cure Toothache.

Some months ago an English tourist, lingering in a country church-yard, was present at a funeral, and observed among the group of mourners a young man who particularly attracted attention by his swollen face and the utter dejection of his appearance. "Here, at least, is one true mourner," thought the Englishman. While this thought was passing through his mind the supposed mourner took up a skull which lay on the top of a heap of dry mold and crumbled bones. He raised it to his lips, and, with his own teeth, extracted a tooth from it. Horror filled the stranger as he watched this proceeding and saw him throw the skull carelessly away, while he wrapped the tooth in paper and put it in his pocket. "Can you tell me why he did that?" asked our tourist of an old man who stood beside him during the funeral ceremony. "Ay, surely, your honor, the poor boy was very bad wi' the toothache, an' it's allowed to be a cure if you draw a tooth frae a skull wi' your ain teeth. He'll sew the tooth in his clothes an' wear it as long as he lives." "You don't tell me so! Do you think the remedy will be effectual?" "It's like enough, sir," replied the old man, showing where a tooth was sewed in the lining of his own waistcoat. "It's five years since I pulled that ane the same way, an' I never had a touch o' the toothache since."—*All the Year Round.*

The Home.

A dark house is always unhealthy, always an ill-aired house. Want of light stops growth and promotes scrofula, rickets, etc., among the children. People lose their health in a dark house, and if they get ill they cannot get well again in it.

Dr. Edwards, of Paris, says the action of light tends to develop the different parts of the body in that just proportion which characterizes the species, and that in warm climates the exposure of the whole surface of the body to the action of the light will be very favorable to the regular conformation of the body. Humboldt confirms this in the account of his voyage to the equinoctial regions. He says, "Both men and women (whose bodies are constantly inured to the effect of light) are very muscular, and possess fleshy and rounded forms. It is needless to add that I have not seen among this people a single case of natural deformity."

Odds and Ends.

I have been frequently struck myself by the amount of ingenuity and clever contrivance which I have seen displayed in housekeeping, where the income was small, but the most was made of it. Little odds and ends that a wasteful cook would have thrown away reappeared in delicate and tempting forms as breakfast dishes or entrees. Joints were not sent to table cold and ungarnished over and over again, till one was tired of the sight of them, but allowed to rest in the larder for a day or two after their first appearance, and then served up with such delicious supplements of salad and other vegetables that the obnoxious "cold meat" acquired merits which it had never seemed to possess before. In far larger and richer establishments, on the contrary, I have sometimes been reminded of the lady who had a pig killed one Saturday, and for the whole ensuing week entertained her guests on pork alone, because it saved trouble.—*The Queen.*

A Great Waste.

It is the practice of many dairy farmers to kill the calves at a very early age, long before they can be or should be of any use as food. This is a source of loss which, take the country through, is something enormous. An animal already grown to the weight of sixty or eighty pounds, and which might, through a few weeks of proper feeding, be made to yield a large amount of food, is killed, and all that is saved is the skin! There are cases when it is the best economy to get rid of the calves as soon as they come, but these are exceptional, and in the ordinary dairy of a farm practicing mixed husbandry, there is seldom, if ever, a call for such an untimely and unprofitable removal of the calves. It will pay well in many cases to grow the calves until they are six months old, and thus produce an animal weighing 500 pounds, and of the best quality, commanding a ready sale in the markets.

Consumption Cured.

A correspondent of an English medical journal furnishes the following recipe as a cure for consumption: Put a dozen whole lemons in cold water and boil until soft (not too soft,) roll and squeeze until the juice is all extracted, sweeten the juice enough to be palatable, then drink. Use as many as a dozen a day. Should they cause pain or looseness of the bowels, lessen the quantity, and use five or six a day until better, then begin and use a dozen again. By the time you have used five or six dozen you will begin to gain strength, and have an appetite. Of course as you get better you need not use so many. Follow these directions, and we know that you will never regret it if there is any help for you. Only keep it up faithfully. We know of two cases where both patients were given up by the physicians, and were in the last stages of consumption, yet both were cured by using lemons according to the directions we have stated. One lady in particular was bedridden and very low, had tried everything that money could procure, but all in vain, when, to please a friend, she finally was persuaded to use the lemons. She began to use them in February, and in April she weighed 140 pounds. She is a well woman to-day and likely to live as long as any of us.

Household Recipes.

To Preserve Carpets.—Carpets should be shaken often. The dirt that collects under them grinds out the threads. But do not sweep them oftener than is absolutely necessary. Take a brush and dusting-pan and remove the dirt in this way, and your carpets will wear enough longer to pay for your labor.

To Keep Bread Moist.—Have the dough still when it is set for the last rising. The larger proportion of flour to that of moisture in the dough the longer it will keep moist. After the bread is baked and cold put it in a tin box or an earthen jar with close cover and keep it covered tightly. Bread thus made and kept cool, and always from the air, will last and be moist for a week.

Oyster Pie.—One pint and a half of oysters is sufficient for a pie for a family of three. Line a deep quart dish with a crust half an inch thick, put in a layer of bread crumbs, add the oysters, bits of pepper, a little mace, pepper and salt, and liquor strained from the oyster enough to half fill the dish; and another layer of crumbs and cover all with a crust; make an incision in top; bake an hour, brown it gradually and serve hot.

Soap.—Three and a half pounds of grease, four gallons of cistern water, one box of concentrated lye. After the lye is dissolved boil two hours and a half.

To Tell Good Eggs.—If you desire to be certain that your eggs are good and fresh put them in water—if the butts turn up they are not fresh. This is an infallible rule to distinguish a good egg from a one.

Marlborough Pudding.—Stew a few apples and strain them, add a teacup of butter, a teacup of sugar, a teacup of cream, the juice of two lemons with the best part of the grated rind, a little mace and four eggs beaten lightly, and to be baked in a rich paste.

Water Filter.—Filter in the following manner: Make a mattress of charcoal broken in small bits to fit a large common flower pot—put it in bottom of the pot, with a mattress of sand over it, each about five inches thick; hang this pot on a faucet, with a vessel under it to receive the water.

Lemon Ginger Cakes.—Quarter pound of butter, one-half pound of sugar, three eggs, one small cup of milk, the same quantity of molasses, three and a quarter pounds of flour, teaspoonful of ginger, one of cinnamon, one tablespoonful of saleratus dissolved in the milk, the rind of two lemons and the juice of one. Bake in a quick oven.

Schislik.—Caucasian dish, given to the writer by Alexandre Dumas pere)—Cut the fillet of mutton into pieces the size of a walnut; cover the pieces with vinegar, chopped onions, salt and pepper for twenty-four hours, then put the pieces on a skewer (silver if you have) and cook on hot coals, turning all the time; serve with hot butter and a little curry.

Fish Fritters.—Take the remains of a fish which has been served the preceding day; remove all the bones, and mince fine; add equal quantities of bread crumbs and mashed potatoes; stir in two beaten eggs; season with pepper and salt; add enough cream to make the mass of a proper consistency to mold into little balls, and fry them in boiling lard.

Indian Meal Pudding.—One pint of Indian meal cooked, one quart of milk, half a cup of butter, one pint of molasses, four eggs, with a little cinnamon or nutmeg; boil the milk, stir in gradually the meal, mix all together and let it stand two hours, add the eggs when the pudding is ready to put in the oven; let it bake two hours.

To Clean Paint.—Housekeepers will find the following receipt for cleaning paint useful: To a pound of soap and half a pound of pulverized pumice stone add an equal quantity of pearlash, and mix

with hot water into a hot paste. With an ordinary paint brush lay on this mixture over the paint which requires cleaning, and in five minutes wash it off with boiling water.

BAKED HALIBUT, CREOLE STYLE.—Put a halibut steak, weighing about a pound, in the middle of a pan; sprinkle it with a nice piece of garlic the size of a pea, cut fine; then spread with tomato enough to cover the fish; then cover with bread crumbs. Add a little butter and salt; then garnish the dish with more tomatoes, and bake twenty minutes. Better to bake on dish to serve on.

OMELET WITH SARDINES.—Take six good sardines—must be whole; drain them thoroughly; remove carefully the scales and get them dry; make an omelet as usual, but the moment it begins to cook on the sides, place the fish lengthways on the omelet and turn the edges over them. Sometimes a very little chopped anchovy is placed inside of each fish; must not be cooked too much.

SOUTHERN MODE OF COOKING RICE.—Pick over the rice and wash it in cold water; to one pint rice put three quarts boiling water and half teaspoon of salt; boil it just seventeen minutes from the time it begins to boil; turn off all the water; set it over a moderate fire with the cover off, to steam fifteen minutes. Take care and be accurate. The rice water first poured off is good to stiffen muslins.

CUCUMBER CATSUP.—Grate three dozen large cucumbers and twelve white onions; put three handfuls of salt over them. They must be prepared the day beforehand, and in the morning lay them to drain; soak a cupful and a half of mustard seed, drain it and add to the cucumbers, with two spoonfuls of whole pepper; put them in a jar, cover with vinegar and cork tight; keep in a dry place.—*Jewish Cookery Book.*

BRIOCHE.—This is an excellent light cake for breakfast or luncheon, and is much used in France. Beat one-quarter pound butter until it is in a cream; take three eggs, and beat until light; mix thoroughly with the butter; add to this one-half pound of sifted flour, and to this mix one small cake compressed yeast; then a gill of water; set to rise over night in a warm place; put in a turban form, and bake in a quick oven.

HOW TO COOK BEANS.—A writer says: Not one person in a hundred knows how to cook properly a pot of beans, and yet it is very simple. Here is the proper mode: Put one pint of dried beans and a quarter of a pound of salt pork into two quarts of cold water, bring them to boil, and boil slowly for about twenty minutes; then put the beans, with about a teacupful of the water they were boiled in, into an open jar; season them salt and pepper to taste, and one tablespoonful of molasses; lay the pork on the top and bake two hours or longer.

LOBSTER MURPHY.—Boil and mash a dozen potatoes, must be smooth; add milk and butter to them, and the yolks of three eggs; boil your lobster beforehand; pick clean; add eggs of lobster, if there are any; stew lobster gently with a pint of cream; add a very little cayenne, and half the juice of a lemon; only enough flour to thicken it; take potatoes and cover inside a tin or an earthenware form, buttering the form first; put in a quick oven and bake; when sufficiently hard put in lobster stew; replace in oven for five minutes, and serve.

LOBSTER SOUP.—The foundation of this soup should be made of fish. A cod's head is best; any white stock, however, whether of fish or meat, answers perfectly well. Take care that all fat is removed from the stock, let it boil and add two or three tablespoonsful of corn-flour. Stir over fire until it thickens, then put in two ounces of fresh butter; when dissolved, beat in of two eggs, and stir in a moderate heat for ten minutes; withdraw stewpan to the side of the range, so that it will keep simmering; put in soup a tin of lobster or the same quantity of fresh boiled lobster. Let it cook ten minutes.

SCOTCH POTATO SCONES.—Rub one pound of cold boiled potatoes through a sieve, put them on the baking-board, and scatter over them seven ounces of flour; work first with the rolling-pin into a paste, then a little with the hand until smooth; strew flour heavily on the board and over the paste, which roll about the thickness of half a crown, and cut into shapes. Lay the scones on a hot stove; when a little brown on one side, turn and finish on other. Serve hot in a napkin.—*Every Day Meals.*

FOR RATS.—The *Massachusetts Plowman* says: "Copperas is the dread of rats. In every crevice or every hole where a rat treads, scatter the grains of copperas, and the result is a stampede of rats and mice. Every spring a coat of yellow wash applied to the cellars is a purifier as well as a rat exterminator."

STOCK FOR SOUP.—This receipt will be found useful, as in a family not too immerous enough stock can be made for a week. Take four pounds of lean beef, cut it into small pieces, slice an onion, saw a hock-bone of beef, remove the marrow, and fry the cut beef and onions in the marrow to a full brown; put fried meat, onions and fresh hock in two gallons of cold water; let it simmer all day; at night strain through sieve, and replace in kettle; throw in some egg-shell and clear; strain through a cloth into an earthen crock; in the morning skim the stock to remove grease; this stock may be used for vegetables or for any kind of soup; of course it is of a rich brown color.

VEAL CURRY.—One pound and a half of veal cutlet from the neck, two tablespoonsful of curry powder, two tablespoonsful of flour, a little salt, pepper and cayenne, a large acid apple, one small shalot, stock sufficient to cover it. Cut the meat into cutlets; take care to have a bone in each, and fry them a light brown with a little butter. The shalot should be fried at the same time. Peel and core the apple, and cut it up; stew the meat, shalot and apple in the stock for half an hour, very gently; then add the curry powder and flour, having previously mixed them with half a cup of stock. Pass it through a sieve. Let it boil up twice, dish up the cutlets and pour the sauce over them. This curry is excellent. It may be made in the same manner with chickens or rabbits; and should apples not be in season a little lemon juice may be added just before it is boiled. In India the pleasant acid of fresh tamarinds is used.

As well-boiled rice is so essential with curry, I will add the receipt of it here: Put a saucepan full of water, let it boil *fast*; sprinkle in a little salt, and then the rice, dropping it into the water with the hand. Do not cover the saucepan. When the rice is done strain off the water and set it on a cloth before the fire to drain. Toss it up a little with two forks, and serve it in a dish *separate* from the curry. Select large rice to boil for the curry, and of the best description only.

RASPBERRY AND CURRANT SPONGE.—One pound loaf sugar, 5 eggs, pint of raspberries, 2 oz. gelatine, 1 pint currants. Boil the gelatine until perfectly dissolved in half a pint of water. Bruise the fruit and stand it over the fire, with a very little water and the sugar until it is sufficiently cooked to squeeze through a jelly-bag. Strain through the bag into a large basin. Strain the gelatine through a sieve. When both are cool, mix well together, and add the whites only of the eggs well beaten. Whisk all together half an hour, and stand on ice to cool. Eat with cream.

GOOSEBERRY FOOL.—Put green gooseberries into a jar with two tablespoonsful of water, and a little moist sugar; place the jar into boiling water, and let it boil until the fruit is soft enough to mash, then beat it to a pulp; stir to every pint of pulp one pint of milk, and add plenty of sugar. Serve either in glasses or glass dishes.

GOOSEBERRY TRIFLE.—Put one quart of gooseberries into a jar with sufficient moist sugar to sweeten them, then boil them until they are reduced to a pulp. Place the pulp into a trifle dish, and pour over it a quart of custard, and when quite cold cover with whipped cream.

LIVE STOCK.

Percheron Horses.

Harpers' Monthly for February had a lengthy and exhaustive article on this subject, from which we give the following selections:

The Percheron horse is undoubtedly the most symmetrical and powerful for his size, and possesses the finest action and greatest endurance, of all the large breeds in Europe. His general type is also the most ancient of any of which we have record or tradition, and this is the reason why he is more prepotent than others in transmitting his superior qualities to his offspring.

Tradition asserts that the first great improvement in refining the large horses of France was made by Barb stallions captured from the Moors. In 1731 they crossed the Pyrenees from Spain to France with a countless cavalry host, led by the fiery Abee Rahman. The following year they advanced to the broad plains between Tours and Poitiers. Here they were met by the sturdy Charles Martel, well surnamed the "Hammer," at the head of his French horse, which, being of so much heavier weight than those of the Moors, he was able to ride down the latter in repeated charges, and thus completely overwhelm them. Thousands of these fine Barb stallions were then captured (for the Moors ride such only) and distributed among the French soldiers, who, on returning to their farms, bred them to their own large native mares. The best and most uniform of this produce were then selected and coupled among themselves, the result of which, together with other well-made crosses from time to time since that period, gives us the improved Percherons of the present day.

A modern Percheron horse is described as follows: "Head clean, bony, and small for the size of the animal; ears short, mobile erect, and fine-pointed; eyes bright, clear, large and promiuent; forehead broad; nostrils large, open, and bright red within; jaws rather wide; chin fine; lips thin; teeth sound and even. Neck a trifle short, yet harmoniously rounding to the body; throttle clean; crest rigid, rather high, and gracefully curved; mane abundant with silky hair. Breast broad and deep, with great muscular developments; shoulders smooth and sufficiently sloping for the collar to set snug to to them; withers high; back short and strongly coupled; body well ribbed up, round, full and straight on the belly, which is much longer than the back; rump broad, long and moderately sloping to the tail, which is attached high; hips round and smooth at top, and flat on the side; quarters wide, well let down, and swelling with powerful muscles. Dock strong; tail long, heavy and gracefully hanging out from the croup when the animal is in full motion. Legs flat and wide, standing square and firm, and well under the body, with hard, clean bones, and extra large, strong joints, cords and tendons; short from the hocks and knees down; pasterns upright; fetlocks thin; hoofs full size, solid, open, tough, and well set up at the heels. Height fifteen to sixteen and a half hands; weight 1,300 to 1,700 pounds. Colors various as with other horses; but a clear dapple gray is preferred, as the best of the original breed was thus marked. Action bold, square, free and easy, neither forereaching nor interfering; the walk four to five miles per hour, the trot six to eight, on a dry and moderately level road, but capable of being pushed much faster on the latter gait when required. Temper kind; disposition docile, but energetic and vigorous; hardy, enduring and long-lived; precocious; able to be put to light work at eighteen to twenty-four months old; possessing immense power for the size; never balking or refusing to draw at a dead pull; stylish, elegant and attractive in appearance; easy, elastic and graceful in motion. No tendency to disease of any sort, and especially free from diseases of the legs and feet, such as spavin, splint, ring-bone grease and founder. An easy keeper and quick feeder."

Feeding Horses—Sore Shoulders.

A correspondent of the *Country Gentleman* states he has found, by long experience, that the best grain feed for horses is corn, oats and shorts, of each one-third, the first two to be ground finely, and the shorts to be well mixed in. The hay, or hay and straw, were cut fine and wet twelve hours before feeding, and the meal was thoroughly mixed with the hay at the time of wetting, so that all could become thoroughly softened and prepared for digestion. His horses were uniformly healthy and in good condition at all times. The Adams Express Company feeds its horses a little oil meal once or twice a week in addition to the mixture of corn and oats. This is done to help the grooms keep the horses' coats glossy at all times, saving much time in rubbing and brushing.

The systems of feeding adopted by several street railway and carrier companies in Manchester, England, are as follows: The feed varied from 10 to 14 pounds of cut hay, or hay and straw, and 16 to 20 pounds of grain, for each horse, daily. Their horses are all heavy, powerful dray horses, and, of course, need more feed than lighter ones used here. The grain feed was composed of maize, beans and wheat bran, in the proportion of three pounds of corn to one of each of the others, all finely ground and mixed. The hay and straw were chaffed and wet, and the meal mixed in some time before feeding. No horse beans are grown here, but oats and shorts are a good substitute for beans and bran.

An old stage-driver of long experience, who was noted for keeping his teams sound, always washed the shoulders and breasts of his horses as soon as the harness was taken off, using cold water in the summer and lukewarm water in the winter. After rubbing nearly dry, he washed them daily with a decoction of smartweed, in the summer, when there was no danger of galled shoulders. In the winter the smartweed was used about once a week. His teams never had sore necks or shoulders.

First Year of Heifers.

Mr. C. F. Clarkson speaks from his own experience in the agricultural department of the *Iowa Register*, when he says "it is too often the case that farmers let heifers with their first calf run together in the pasture the first year, for the reason that they do not generally give a larger quantity of milk than will raise a calf. This is wrong. If the heifer is intended for service as a milker in after years, her udder must be enlarged and distended at her early age so as to hold the full secretions of milk for twelve hours. When running with her calf it will suck every hour or two and her bag will shrink to just that capacity. They must be cultivated to large capacity at the proper period of the heifer. Therefore, so soon as there is no danger of inflammation of the udder from the milk remaining in it twelve hours, the calf should be weaned. But the heifer should not be removed so far from the calf that she cannot see and smell it. The natural attachment of mother for offspring has much to do in developing her capacity to support it. Smelling and licking her calf stimulates and enlarges the mammary glands and develops the of secretion of milk. For four or five days a heifer which has been full fed should be

milked every three hours, gradually increasing the time, until it is fixed at twice a day. In this way the udder will be cultivated to the capacity of a full milk cow. If there is a demand for the milk or the cream, the calf can soon be fed on skim milk and kept in the most thrifty condition by adding gruel made of oil cake, corn and oatmeal. This is work. All right. If one were to judge of the idle farmers seen nearly every day standing on our streets, there is need for more work, and careful work, at home. A kind and careful man always has gentle cows. A cross and vicious man has kicking, jumping and fractious cows. It is easy to judge the character of a farmer by the character of his cows."

Milk Fever.

Numbers of good cows die every year of what is called milk fever, and it is noticed that such cows are generally in good condition or fat. We have never had a case of this disease in our herd, whether this exemption is due to management or luck we know not. It has been noticed that when cows drop their calves in the pasture in summer they almost always do well, their bowels being kept open by succulent food, and they do not get chilled by drinking icy water. We make it rule to feed a cow few days before she is expected to come, in with early cut hay and roots; small potatoes are excellent. Some object to the disposition which the cow makes of the after-birth if left to herself, but we have thought that perhaps nature knows more than the average of cow doctors and we let her alone. If the cow shares with the calf the first milk which is drawn from the udder it will have a laxative effect. We do not give water until the chill has been taken from it, or meal for three days after calving. Many cows do well that have no extra care, but an ounce of prevention will always be found to be worth a pound of cure. We are indebted to the *New England Homestead* for these practical suggestions.

To Cure Foot Rot in Sheep.

The preparation of the foot is just as essential as the remedy, for if every part of the disease is not laid bare the remedy will not effect a cure. A solution of blue vitriol as strong as can be made and as hot as you can bare your hand in, even for a moment, having the liquid three or four inches deep, or deep enough to cover all the affected parts; then hold the diseased foot in this liquid ten minutes, or long enough to penetrate to all the diseased parts; put the sheep on a dry barn floor for twenty hours to give it a chance to take effect. In every case where I have tried it it has effected a cure, and I have never given a sheep medicine internally for foot rot. This remedy I call a dead shot when the foot is thoroughly prepared, but a more expeditious way, and where you hardly hope to exterminate the disease, but keep it in subjection, is this: After preparing the feet as for the vitriol cure, take butter of antimony, pour oil of vitriol into it slowly until the heating and boiling process ceases and apply with a swab. This remedy works quicker, is stronger than the vitriol, and is just as safe, but its mode of application renders it less sure.—*Ohio Farmer.*

The Care of Sheep.

A sheep to be well and hearty must not be half starved at any period of its growth. It must be personally comfortable to grow wool every day of its life. Three hundred and sixty-five days make a year. If from any cause a sheep is uncomfortable a single day, he will grow wool only 364 days in a year. If for four months at a time from ill health or lack of food or water it produces wool only eight months in a year, there is a loss of one-third of the profits he would have given his owner.

A sheep out of condition is subjected to ailments that in good condition would not have affected him. Sheep fat in the fall will go through the winter and the ordeal of lambing with safety and success. If in thin, weak condition, the relaxing of the system in spring and the extra demands on the system of the ewe at lambing time, bring a series of diseases quite disgusting to the flock-master. No animal rewards its owner so for liberal feeding and painstaking care as does the sheep. The idea has so often been expressed that a sheep can do without food and water, that many have concluded it was true. It may live on less food (and do well) than any other animal in proportion to its live weight, but that they live by eating is sure, and the more they eat and the better hygienic treatment the better results they give in fleece and lamb, and vigorous, long-lived usefulness.

The Horse's Punishment.

A horse appreciates a comfortable fitting harness as much as he does a properly fitted shoe. The latter, when set too tight, or with a nail driven into, or too near the sensitive tissues, produces positive lameness. Under this condition of things he is promptly taken to the shop for relief. But he may suffer nearly or quite as much, from the chafing of a badly fitted collar or a narrow belly band, drawn too tight; or of a check rein shortened up so as to form of itself one of the severest of punishments. Either of these conditions will produce restiveness in the dullest brute, and in the case of an animal of nervous temperament, and having a thin sensitive skin, he is liable to become frantic, the obtuse owner or driver seldom appreciating the origin of the difficulty.

No greater evidence can be advanced to establish a horse's entire submissiveness than his willingness to pull against the collar with a portion of the breast surface denuded of its skin, and showing the highest possible state of sensibility. The average horse will do this, shrinking at every step. A horse learns to dread the approach of the master or driver, with harness in hand, if this has previously been a source of torment, or even of discomfort. A horse properly handled for a period, in a well-fitted harness, then chancing to fall into the hands of a bungler, will at once detect the undue tightness or looseness of the strap, and will not settle down to his usual gait, contentedly, while the irregularity remains. A spirited horse may, under such an irritating influence, do from downright fear what may be wrongly charged as viciousness. Heavy strokes of the whip may fall upon the irritated beast only to be followed by evil results.

Among the every day torments to which the horse is subjected, we will enumerate the following: 1st. Abraded breast. 2d. Inflamed back from defective saddle or harness pad. 3d. Sore mouth from a too tight gag rein, a severe bit, or both. 4th. A sore tail from too tight or illy made crupper. 5th. An abrasion under the body, caused by a too tight or badly fitted belly-band. 6th. Irritation of the eyes from blinders being strapped too close together, or on the other hand are allowed to swing around, first striking one eye then the other. 7th. Ears chafed by the brow band being placed too high, or by metallic rosettes with a sharp outer rim, the base of the ear pressing across this at every motion. 8th. The excessive fatigue of all the structures of the neck under the influence of the bearing rein. The bearing rein, if made taut, and kept so for any considerable length of time, is a source of great discomfort to horses, and an insufferable torment to many. A taut rein can be used with entire propriety on horses of fine, easy up carriage, especially while in motion, but if the muscles and bony structure of the neck extend forward horizontally from an upright shoulder, rather than striking out from a slanting shoulder, then the most intense suffering will be inflicted by straining the neck up to an angle entirely unnatural to the animal, especially if this strain be long kept up. To strain a culprit up by the thumbs, till only his toes touch the ground, is one of the severest admissible punishments that can be inflicted upon mortal, and the check rein is undoubtedly akin to it in its extreme application.

Cattle on the Range.

As our cattle-raisers ride among their herds attending the young calves and the weak cows, like the merchant who takes an account of his stock, they will sum up the number on the range and place a valuation as best they can, thus footing up their gain in wealth during the past year. An occasional carcass may be seen, and were they all accurately summed up and charged to one herd the loss would seem heavy, yet when divided among the many herds they will seem too insignificant to be counted. Basing the valuation upon the prices cattle are commanding at the present time and comparing with the prices of last year there is a noticeable gain. Cattle which a year ago were worth the then good price of $12 each, are now advanced fully one-third and readily in demand at $16. This, however, only refers to the cows, heifers and young stock which will not come in for beeves. Steers which were two and three years old and went in the sales at the prices of herd stock have gained in value still more, for they now come in for the slaughter pen. If the advance in the value of this class of stock could be estimated as high proportionately as the herd stock, the profits of the year would be enormous. But it is too early to definitely determine what the prices of three, four and five year old steers will be, yet we fear they will not range much higher than last year. Purchasers of Montana cattle at Chicago have been well pleased, and our beeves in all the eastern markets that they have reached have been complimented; and as the signs of the times in the States indicate an advance rather than a decline in prices we may look for the usual number of buyers. Our home consumption will be materially increased this year by the large immigration, but there has been an increase in the number of cattle raised sufficient to equal it, so there are about as many, and possibly a few more fat beeves for the eastern markets than any previous year. We bid the cattle drovers come right along; the valleys of the Judith, Sun River, Musselshell, Smith river and Yellowstone can supply you with beeves as good as your corn-fed, and raised at as small expense to their owners as can be had anywhere on the continent.—*Rocky Mountain Husbandry.*

A Mare that Nursed a Calf.

A brood-mare on a Colorado ranche lost her colt this spring and appeared to be deeply grieved over the circumstance. After being melancholy and depressed in spirits for some days her cheerfulness returned. Then it was discovered that she had adopted the offspring of another animal as her own. The curious part of the matter is that her choice had fallen upon a calf which she had enticed away from its real mother and suckled with the greatest care. The calf was apparently happy, and followed its foster mother with great affection. When the calf was taken away from the mare she made a strong fight to retain it and relapsed into her former melancholy condition for a number of days after its loss.

How Much Will Keep a Horse.

A horse weighing from ten to twelve hundred pounds will eat about six tons of hay, or its equivalent, in a year. And we suppose the real point to get at is, whether one can keep his horses cheaper on some other product than hay. This is an exceedingly difficult question to answer—it depends so much on circumstances. We shall not attempt to answer it fully at this time, but will merely say that, in our opinion, three and a-half tons of corn stalks and two and a-half tons of corn would keep a horse a year in fully as good condition as six tons of hay. We may estimate also, that it will take three and a-half tons of oats-straw and two and a-half tons of oats to keep a horse a year. A bushel of oats weighs thirty-two pounds, so that it will take over one hundred and fifty-five bushels and three and a-half tons of straw to keep a horse a year. It would take about two acres of good land to produce this amount.

POULTRY.

Coops.

Look well to your coops as the warm weather comes on, see that they are clean and free from lice. If you let the lice get into your coop and fowls, it is quite an undertaking to get rid of them again. When they do get into a flock we find the best remedy is to fumigate with sulphur and use crude petroleum freely on the roosts and in the nests, but better to keep your houses clean and avoid getting them into your flocks.

Charcoal for Fowls.

An old turkey raiser gives the following experiment: "Four turkeys were fed on meal, boiled potatoes and oats. Four others of the same brood were, also, at the same time, confined in another pen, and fed daily on the same articles, but with one pint of very finely pulverized charcoal mixed with their food—mixed meal and boiled potatoes. They had also a plentiful supply of charcoal in their pen. The eight were killed on the same day, and there was a difference of one and a half pounds each in favor of the fowls that had been supplied with charcoal, they being much the fattest, and the meat being greatly superior in point of tenderness and flavor."

Fowls in Orchards.

Last fall we visited an orchard in which fowls were kept, the owner of which told us that before the fowls were confined in it the trees made little or no growth, and only a corresponding amount of fruit was obtained. But what a change was evident now! The grass was kept down, the weeds killed, and the trees presented an appearance of thrift, which the most enthusiastic horticulturist could not but admire and envy. The growth of the trees was most vigorous, and the foliage remarkably luxurient; the fruit was abundant, of large size, and free from worms and other imperfections. The excellence was accounted for by the proprietor, who remarked that the "hens ate all the worms and curculio in their reach, even the canker-worm." He found less trouble with their roosting in trees than he expected, and that a picket fence six feet high kept them within bounds. His orchard was divided into three sections, and the fowls were changed from one to another, as the condition of the fowls or the orchard sections seemed to require.—*Poultry World.*

Poultry Notes.

Save the droppings from your hen roosts. No better manure can be had if mixed with loam, muck or plaster.

Carolina tar applied on the cracks and joints of hen-houses is beneficial in a sanitary point of view.

Discard wooden floors in your hen-houses as they absorb and retain a great deal of moisture from the droppings.

There is in a few old rusty nails more health-giving properties than in some of the so-called poultry food.

The expense of keeping a dozen hens is trifling. A large share of their living can be readily supplied from the table.

Scalded meal made into a mush and cooked an hour or two, and fed warm with grated horseradish, stimulates the hens to "shell out."

The spurs of large turkey gobblers should be trimmed and blunted during the breeding season, lest they lacerate the backs and sides of the turkey hens.

Set your hens in the evening if you have to move them from the laying nests; they will be more sure to stick to their new nests afterward.

Plaster scattered over the floors of the fowl houses is a powerful absorbent, preventing the smell which arises from the droppings.

Fowls are very fond of milk and will thrive wonderously upon it. If the meal mush is mixed with milk in lieu of water a great benefit is derived therefrom.

The dust heap is absolutely necessary for fowls. It cleanses thsir feathers and skin from vermin and impurities, promotes the cuticular or skin secretions and is materially instrumental in preserving their health.

A shallow tub kept well filled with water and sunk on a level with the ground, will afford plenty of bathing room for the ducklings until they are two or three months old, or perhaps longer.

A correspondent says he mixes hog's lard in the dough he gives his hens, and asserts that a piece as large as a hickory nut will, if divided up and mixed with their soft feed, set a hen to laying immediately after she is broken up.—*Poultry Monthly.*

Remedies for Gapes in Fowls.

An effective remedy for this thinner of the poultry yard is that described by General Noble. He slaked a barrel of lime wash to about the thickness of paint, and into this stirred from ten to twelve pounds of sulphur flour. Into each pailful used, he mixed a tablespoonful of carbolic acid, and with a brush sloshed every part of the hennery, roosts, floor and walls with the mixture. This was repeated several times, especially with each new brood, to the entire disappearance of gapes from among his poultry. Of course, a smaller quantity of all the ingredients would suffice for smaller quarters for fowls. As related in a *Rural* brevity, a friend of ours has found an effective remedy in dry caustic lime. A pinch of it was dropped into the bird's throat, which was then let go, and by next day it had recovered. That's about the easiest cure we know. A trifle more troublesome is that found out by an Englishman. Taking two parts of sulphur and one of salt, he mixed with water to the consistency of thick cream—using the finger to mix the sulphur, as it doesn't readily mix with water. Then having dipped a feather into the mixture he thrust it about three inches down the bird's throat, working it up and down a few times, and repeated the operation three or four times at intervals of a couple of days. A still easier remedy is one given by a correspondent who got rid of the pests by simply removing the chickens and their coops away from the house, and placing them under a tree in the orchard or meadow, having mowed the grass where there was any. Colonel Curtis tells how he cured a chick of gapes by making it inhale tobacco smoke until it was stupefied. This he did by placing the little wretch in a coop with a vessel by its side, containing burning tobacco, the smoke of which was prevented from escaping by means of a covering over the coop.—*Rural New Yorker.*

Care of Early Broods.

More care is required for early chickens than for late ones; but they are so much more valuable—both for market and eggs—that one is well repaid for this extra labor. The newly-hatched brood need no food whatever for at least twenty-four hours after leaving the shell; the remains of the yolk of the egg being the natural provision for their sustenance till they become strong enough to follow the mother to fresher fields.

It is well to take the hint that nature gives, and continue for a day or two a little hard-boiled egg, mashed fine and mixed with Indian meal which has been scalded and left so dry that each particle separates from its fellows. The natural food of all young things of the feathered tribe is mostly composed of some sort of animal or insect. One who who has watched the growth of a nest of infant robins is astounded at the rapidity with which the fledglings assume the size of half grown birds. If he has watched the parent birds, as well, at their ceaseless labors, and seen the multitudes of worms and insects with which they have filled the ever-open beaks of their brood, the wonder is explained. It is worth while to adopt a similar plan with our chickens, and give them bits of fresh meat, to promote rapid growth and development. It has been tried in some cases with happiest results, and in one, to our own knowledge, with disastrous consequences. A pretty brood of chickens in the back-yard were so delighted with bits of fresh, cooked veal, shredded like short worms, that we fed and fed, till every little crop stuck out like a pouter pigeon's and they retired in undisguised content beneath their feathery coverlet. Alas! they never left that friendly shelter alive. The mass of strange and unaccustomed matter, devoured so greedily from our too lavish hand, proved too much for the innocents, and when biddy roused from her night's repose, and called the roll of her fledgelings, not one answered to the call.

We do not record this little episode of our juvenile experience as detracting at all from the value of meat diet for chickens, but simply to "point a moral," which is this: feed judiciously always, never to repletion, of anything. Two or three little scraps of meat for each chick, once or twice a day, is probably all they will need, and for these they will amply repay you in increased growth and vigor.—*American Poultry Yard.*

LITERARY AND PERSONAL.

RULES AND PREMIUM LIST OF THE EIGHTH CINCINNATI INDUSTRIAL EXPOSITION, of Manufactures, Products and Arts, under the direction of the Board of Commissioners appointed by the Chamber of Commerce, Board of Trade, and Ohio Mechanics' Institute, to be opened to the public on Wednesday, September 8, and continue until Saturday, October 9, 1880. This is a splendid royal octavo pamphlet of sixty-four pages, in ornamental paper covers, with index, impressions of medals, and two folding plates, illustrating the plans of the first, second and third floors of the machinery, horticultural, art, and grand central halls, these being side by side and intercommunicable through spacious side avenues. The premiums are the most liberal that we have ever specially noticed in this country, there being 1,168 medals, 941 of which are specific, namely: 61 gold, 555 silver, and 325 bronze—and 227 discretionary, special and complimentary. Of money premiums there are six of $100, two of $75, two of $60, twenty of $50, four of $40, six of $30, twenty-one of $25, seventeen of $20, twenty-one of $15, forty one of $10, one of $7, twenty-five of $5, six of $3, four of 2, and only one of $1, unless there should be discretionary premiums of that denomination. This foots up one hundred and seventy-seven money premiums, amounting to $3,959 specifically named, besides a large number not yet determined, or ruled by circumstances. Our readers will observe that this is not the Ohio State Agricultural Exhibition, and does not include stock and general farm products, but merely a combination of three of Cincinnati's local institutions, including, machinery and manufactures generally, together with metals and metal works, textiles, arts, sciences, apparatus of various kinds, fruits and floral displays—such a combination as we advocated some years ago for our Board of Trade, Horticultural and Linnæan Societies, including the various manufactures, and mechanical productions, and which so effectually ended in mere "smoke." We then had these Cincinnati institutions in our mind as a model, they having become the model institutions of the "Buckeye State," and going forward "conquering and to conquor."

PREMIUM LIST of the Twenty-eighth Indiana State Fair, to be held at Indianapolis, September 27th to October 2d, 1880. Forty-eight pages royal octavo, containing lists of officers and committees, rules, regulations, &c., &c. This exhibition is divided into fourteen departments, one of which is exclusively under the control of women, distributing premiums amounting to more than $1,000. Each department has a separate superintendent; and the objects and articles are included in over *fifty* separate "books" or minor divisions. This facilitates and simplifies the labors of the judges. There is also a Children's Department, open to boys and girls under sixteen years of age, in which, among many other things, premiums are offered for the best display of "old patched garments," "old darned garments, (stockings, perhaps,) and collections of *stamps* and other curiosities, which may include *business cards* and *buttons*. We confess we like this stimulant to industry in the young, even if their efforts should culminate in nothing higher than stringing *Canada thistle seeds* endwise.

There are *ten* silver medals, 73 diplomas, and 1,050 money premiums offered, from $1 up to $50, besides 25 undetermined or discretionary, and 25 offered by outside citizens, from $5 to $13.50. There are to be five days races, (they do not call them "trials of speed" but *races*) for thirty-four purses, from $20 up to $300. The Indiana State Agricultural Society owns a fine hall, grounds and side buildings, and is able to make a fine display without the aid of a "Centennial Relic."

INTERNATIONAL EXHIBITION of sheep, wool and woot products, to be held in the Main Exhibition Building, Fairmount Park, Philadelphia, Pa., September, 1880, under the auspices of the Pennsylvania State Agricultural Society. A royal octavo pamphlet of 16 pages, giving history, preliminary proceedings, rules, regulations, act of Congress and premium lists, divided into ten divisions and several minor subdivisions; one hundred and twenty premiums from $5 to $250, most of them, however, from $20 to $100, besides ten diplomas. This is an exceedingly liberal list, and ought to bring out the wool-growers of the country.

PREMIUM LIST of the annual exhibition of Agricultural and Horticultural Society, to be held on Wednesday, Thursday and Friday, Sept. 29, 30 and Oct. 1st, 1880, in the Northern Market House, Lancaster, Pa. Over four hundred premiums from 25 cents up to $10 offered for best specimens of fruit, flowers, plants, vegetables, melons, cereals, domestic productions, bee products, tobacco, household manufactures, embroidery, quilts, laces, braids, crochet and tatting work, afghans, fancy goods and furs, cabinetware, saddlery, miscellaneous articles, or other object of art or invention of merit. The managers also invite musical instruments, sewing machines, &c., to be placed on exhibition without competition for premiums. See pamphlet, an octavo of 32 pages, for further particulars, which can be obtained from the managers or at 101 North Queen street, Lancaster.

SCIENCE—A WEEKLY JOURNAL OF SCIENTIFIC PROGRESS.—This is a beautifully printed demi-quarto of 12 pages, on fine tinted calendered paper, at $4 a year. Edited by John Michels, P. O. Box 3838, and published at No. 229 Broadway, New York. The editor is assisted by a brilliant corps of the most able scientific professors and writers in the Union, and starting out with the *fact* that "it occupies a field of literature hitherto unoccupied, and is the only first-class weekly journal in the United States devoted to science, and recognized by scientists as their medium of communication," it has every prospect of success. A "sample copy," No. 1, Vol. I, dated July 3, 1880, has found its way to our table, and if the scope of the present number is a fair indication of those that are to follow, it is worthy of a liberal patronage, and doubless will be appreciated by the scientific world—amateurs as well as professionals. With each weekly number are four pages of advertisements, useful to specialists and others, in practical science. Twelve pages weekly will be 624 quarto pages a year, and is designed for two volumes, with indexes to each. We wish it "God speed," and that we can do no more at this time is not from a want of *will*, but a want of way.

THE NATURALIST'S LEISURE HOUR AND MONTHLY BULLETIN, by Dr. A. E. Foote, 1223 Belmonte avenue, Philadelphia, Pa. We acknowledge the receipt of three numbers of this excellent little journal, so full of everything interesting to the practical naturalist, in almost any specialty, but *most* especially in mineralogy, paleontology and conchology. The work is interspersed with innumerable items of scientific and domestic interest, and teaches the young specialist how to acquire a cabinet, and what it will cost, and also where to obtain it.

PRICE LIST of emtomologieal publications, mainly the publications of the Philadelphia and the American Entomological Societies. Here are catalogued 305 descriptive works on insects, varying in price (according to quantity) from six cents up to $20, and although not elemental works, such as a student (unless a classically educated one) would desire as a *first* book, yet it is an accumulation of entomological literature that, perhaps, could never be secured so cheaply again after this is out of print. Address E. T. Cresson, P. O. Box 31, Philadelphia, Pa. If any of our young men desire to study entomology thoroughly and scientifically, they will find these works a great aid in the identification, of its subjects and especially as they relate to *American* insects.

THE JULY NUMBER of the *American Entomologist* is more than usually full of interesting matter, not alone to entomologists, but to farmers and fruit-growers and naturalists. A new foe to Cottonwood trees (the Streaked Cottonwood Beetle,) that is doing great injury to Cottonwoods in the West, is illustrated and treated of in all its stages. There are admirable and timely articles on the Colorado Potato-beetle, the Army Worm, the Periodical Cicada (misnamed 17-year Locust,) and other articles of a popular and practical character, which the ordinary farmer will find profit and pleasure in reading. The scientific and philosophical reader will be interested in the many valuable notes, and especially in the articles on the embryology and development of the Dragon-fly, and in the admirable exposition of the mode of transformation in butterflies, wherein the real philosophy of the change from caterpillar to chrysalis is presented in a new light and previous errors are exploded.

There are notes on Fertilizers of Alpine Flowers; Economic Entomology in the Public Schools; Carnivorous Habits of Caddis-flies; Development of Eyes and Luminosity in the Fire-flies; Grape Phylloxera not at the Cape; and other editorial matter. The correspondence covers a wide range of subjects, and gives, among other things, a new method of destroying Grain-weevils, valuable experience with the Imported Cabbage Worm from an extensive grower at Chicago, notes from France, and interesting facts regarding Cotton Culture and the Cotton Worm in Mexico, wherein it is shown that Cotton was grown and utilized in that country as early as the twelfth century—a fact not generally known to historians. In the "Answers to Correspondents" department there is the usual variety of interesting queries and replies.

MISCELLANEOUS.

The Fruit Evaporator.

Within a few years the evaporation of fruit by improved processes, under the stimulus of the current high prices for the product, has received much attention. American evaporated fruits have gained a great reputation in Europe, and now constitute an important item in commerce. The demand, market and price within the last year has added new interest and importance to the business.

Perhaps the most significant fact in this connection is, that simpler and cheaper, yet philosophical evaporators have been constructed, and are now going into use as an auxillary to the farmer and orchardist. Fruit growers should closely investigate and turn to account upon their own premises much, if not all, of the fruit that usually goes to waste or is sold at unremunerative prices. The fact that raisins are sold here for 10 cents per pound, after a carriage of thousands of miles, and evaporated pared peaches is worth 25 to 30 cents per pound, suggests at least investigation.

Seeds and Plants.

We would call the attention of those of our readers who contemplate purchasing seeds or plants during the coming season, to the advertisement of Peter Henderson & Co., New York, now appearing in our columns. Peter Henderson, the senior member of the firm, is known far and wide as a horticultural writer and authority. His books, "Gardening for Profit," "Practical Floriculture," and "Gardening for Pleasure," are now in the hands of thousands. The green-house establishment of this firm covers three acres in green-houses and employs upwards of fifty hands. Millions of plants are shipped by mail or express annually to every State and Territory. Their seed warehouse is the most extensive in the city of New York, and every order received is certain to be filled with goods of the best quality, and as they are producers as well as dealers, "everything for the garden" will be sold at low rates. Feb-3m

"Bo-Peep."

This exquisitely wrought steel plate engraving, by the well-known artist, J. A. J. Wilcox, from a painting by that world famous German artist, Meyer Von Bremen, is one of the most beautiful and artistic engravings ever published. A mother and her child are away from the dusty town for an afternoon's recreating in the "Sylvan Wild" of Germany; golden pages are added to life's book of "Happy Hours." It is a genuine steel engraving, and so excellent in subject and body that its possessor can never outgrow it—become he or she however æsthetic in art. Printed on 22x28 paper. Price $3.00. Published by R. H. Curran & Co., 22 School street, Boston, Mass. Apr-1t.

The Cooley Creamer.

This method of "deep-setting of milk" is coming into so general use, that at the recent dairy fair in New York, it was not shown as a "novelty," but took its place as a common and indispensable adjunct to the dairy. With a Cooley Creamer a dairyman is entirely independent of the weather, and his product is uniform at all times. It is in this, as well as in its convenience, that the Cooley process of setting milk commends itself to all who make butter.

From our foreign exchanges we infer that it has been quite extensively introduced into use in Great Britain.—*Albany Country Gentleman.* Feb-4m.

Inventors, Take Notice.

To any of the readers of THE FARMER who desire a patent we would refer them to William R. Gerhart, Solicitor of Patents, at No. 34 North Duke street, (2d floor) Lancaster, Pa. He has opened communication with the Patent Office, at Washington, and is prepared to push claims with promptness and dispatch. Apr-1m

Ballard, Branch & Co.

In another column will be found the advertisement of Ballard, Branch & Co. Apr-1t

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.

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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.

JOHN A. HIESTAND,
No. 9 North Queen St., Lancaster, Pa.

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Dr. S. S. RATHVON, Editor. LANCASTER, PA., AUGUST, 1880. JOHN A. HIESTAND, Publisher.

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

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PENNSYLVANIA RAILROAD SCHEDULE.

Trains LEAVE the Depot in this city, as follows:

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*	2:40 a. m.	4:05 a. m.
Way Passenger†	5:00 a. m.	7:50 a. m.
Niagara Express	10:05 a. m.	11:20 a. m.
Hanover Accommodation	10:10 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy	11:05 a. m.	12:40 p. m.
No. 2 via Columbia	11:07 a. m.	12:55 p. m.
Sunday Mail	10:50 a. m.	12:40 p. m.
Fast Line*	2:10 p. m.	3:25 p. m.
Frederick Accommodation	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom	5:45 p. m.	7:40 p. m.
Columbia Accommodation	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express	7:25 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.
Atlantic Express*	12:25 a. m.	3:00 a. m.
Philadelphia Express†	4:10 a. m.	7:00 a. m.
Fast Line*	5:20 a. m.	7:40 a. m.
Harrisburg Express	7:35 a. m.	10:00 a. m.
Columbia Accommodation	9.10 p. m.	12:0 p. m.
Pacific Express*	1:25 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*	5:20 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.

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

*The only trains which run daily.

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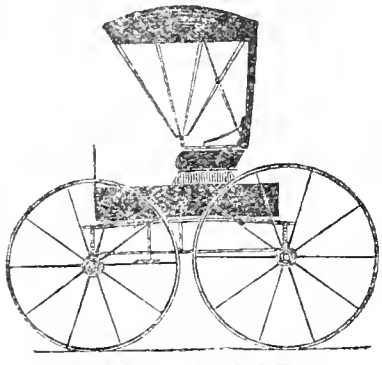

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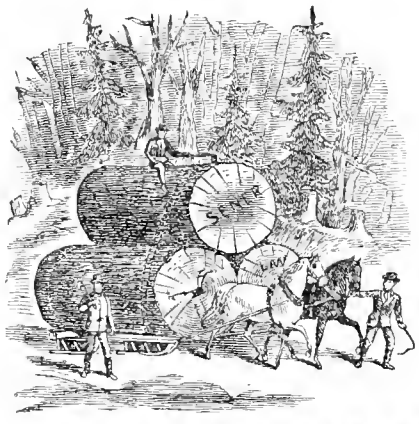

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Nov-1y

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor. LANCASTER, PA., AUGUST, 1880. Vol. XII. No. 8.

EDITORIAL.

THE LANCASTER FARMER AND ITS EDITOR.

In the course of our experience as editor of THE FARMER, during the past twelve years, we have received many complimentary notices from the press and others, who, from their literary status in society, would seem to be competent to judge of its merits. Some of these we have made use of, not under the impulse of personal vanity, but because, as the world goes, it seemed due to our publishers: for no one will ever know what labor and pecuniary sacrifice it has cost to sustain an agricultural journal in the county of Lancaster; and, viewed from the standpoint of self, no one will ever believe it. The following quotation from a recent letter of an intelligent and esteemed correspondent, however, contains a suggestion which we have frequently endeavored to impress upon the minds of our patrons, on account of the value it may be to them when the present editor of THE FARMER has "returned to dust," and the journal itself may be numbered among the things that were:

DAVENPORT ACADEMY OF NATURAL SCIENCES,
DAVENPORT, Iowa, July 26, 1880.

DR. S. S. RATHVON—*Dear Sir:* I have undertaken to record for *Psyche** all entomological articles in a certain number of agricultural papers—and among them THE LANCASTER FARMER—for this purpose I would be pleased if you would have it sent to the Academy regularly in exchange for its proceedings. We would also like to obtain as many of the back numbers as possible—at least those necessary to render the current volume complete, *so that eventually it may be bound.* I may say here that I regard THE LANCASTER FARMER as one of the very best edited agricultural papers in the country."
—*Yours very truly, J. Duncan Putnam.*

Of course we have never made such claims to excellence as have been so generously accorded us, and for two sufficient reasons: *firstly*, because we disclaim self-ascription, and *secondly*, our mental constitution may be such as to disqualify us for rendering a true verdict. Be all that as as it may, however, our principle object in making use of the extract is to offer a few remarks on the words which we have underscored.

Too little regard is paid almost everywhere to local journals, and this is not much to be be wondered at when they are published in large folios, and would occupy much space and be unwieldy to handle when bound together in volumes. But this is not the case with THE FARMER, the two outside leaves of which can be removed, and one, two, three or even four years (with title pages and indices,) be bound together, making a compact and easily consulted volume.

The subscription price of THE FARMER is but *one dollar* a year; the Proceedings of the Davenport Academy of Natural Sciences is an octavo of over 350 pages, with many full-plate illustrations, and is *four dollars* a year. This is offered in exchange for THE FARMER. This is certainly complimentary to our journal, and illustrates a vast difference between local and foreign appreciation. To illustrate how time sometimes affects the value of local publications, we may be allowed to quote a case that came under our own observation. In 1802 and 1803 a quarto was published here in Lancaster, called *The Hive*, devoted to miscellaneous literature. In 1876 $15 was offered for the two volumes bound in one, but the party owning it held it at $25, and rather than part with it took it back again to Indiana, where the party resides. In 1812, I. D. Rupp published a "History of Lancaster County," at $2. In 1872 we paid $6 for it for a friend in the City of Cincinnati, and now the work is held at $10. We have an imperfect volume of the "Pennsylvania Magazine," (8 vo.) published in Philadelphia during the Revolutionary War, a perfect copy of which brought $250 at public sale in New York within the present year. Of course we do not presume to say that THE LANCASTER FARMER will ever bring any such prices, but we *can* say this, that two years ago $20 was offered for a complete set of them, ten volumes, which is an advance of 100 per centum.

In conclusion, there is a vast amount of trashy literature thrown upon the market of the country that does not inculcate a single healthy moral principle, nor yet a practical idea, and yet the sensuously inclinclined are daily greedily devouring it with a morbid hunger that is marvelous to behold. Take up one of these papers (full of pictures) and you see nothing but the graceless illustrations of sights and sounds (if such events ever occurred at all) that must have had their spiritual origin in the lowest regions of the Plutonian realm. Nothing but the evil, the sinful, and the sensuous are illustrated. If the world is morally and intellectually progressing, and we think it is, none of these publications will be worth a "rush light" in five, ten or twenty years hence, even if they survive so long. Finally, patrons, save your FARMERS and have them bound, you never will be ashamed to refer your children and your children's children to their pages, with profit and with pleasure, in the evening of life, when your "head is blossoming for the grave."

DURABILITY OF TIMBER.

If the reader will turn back to page 101 (June number) of THE FARMER, he will notice an article commencing in the middle of the second column on "Durable Fence Posts," by A. B. G., relating to an experiment made nearly sixty years ago, but the result of which was never made manifest to him, he leaving the district before the result of the experiment was made known. The writer invites a reply from some one in that district who has or had a knowledge of the event. No one has yet replied through the medium of this journal, but as germain to the subject, we offer the following *extracts* which are "going the rounds" of the agricultural press:

Making Timber Durable.

"An easy and simple method of rendering timber unusually durable, if not practically indestructible, is of the greatest value to the agricultural community. Fence posts, sills of buildings, and other timber exposed to influences which cause rapid decay, last but a few years under ordinary circumstances. It has long been known that lime is an effective preservative, acting in this way by coagulating the albumen in the cellular tissue of the timber. An easy method of preparing the timber has been applied practically by a French mining engineer. A pit was made in which the timber was placed; quick lime was scattered over it, and then slaked with water. After being exposed a few days to the action of the lime, the timber was removed and used as supports for the roof of a mine. Where unprepared timber lasted but two years, that prepared in this way has been in use for several years without the least appearance of decay. This method of preservation commends itself for its simplicity and cheapness for farm use."

The foregoing embraces substantially the principles involved in A. B. G.'s article; and now it occurs to us that we have often noticed similar statements on the same subject, but they all lacked a responsible verification. It appears to us that the subject is of sufficient importance to warrant an authenticated experiment for the benefit of the public. Analogous to it here follows a voice "from over the water:"

Wood Posts.

"The decay of wood embedded in the earth is difficult to guard against; but, according to the *British Farmer's Gazette*, a simple precaution, costing neither money nor labor, will increase the durability of posts put in the ground by fifty per cent. This is simply by taking care that the wood is inverted—i. e., placed in the opposite direction to that in which it grew. Experiments have proved that oak posts put in the ground in the same position as that in which they grew, top upwards, were rotten in twelve years, while their neighbors, cut from the same tree, and placed top downwards in the soil, showed no signs of decay for several years afterwards. The theory is that the capillary tubes in the tree are so adjusted as to oppose the rising moisture when the wood is inverted."

This plan seems to have more *theory* about it than *fact*, and therefore we have a stronger faith in the lime process; simply because everybody knows the preserving quality of lime in whitewashing fences. On this subject we may be allowed to remark that many people defeat the end of whitewashing by making the mixture too thick, in which case it soon falls off in large cakes, and does not penetrate the tissues of the wood. Preliminarily allied to the subject the following may have a legitimate relation:

Experience in Cutting Timber.

It is asserted, and I have no doubt truly, that the *timber* cut from the middle of June to the middle of August lasts much longer, especially when exposed to the weather, as rails, or the end buried in the ground like posts. Still, if cut in the other months of the year, the bark peeled off and the timber laid up on supports two feet or so from the ground, and permitted to season well before using it, would the difference of endurance be so much? Many years ago I had white cedar fence posts cut in the winter, and as soon as the frost was out of the ground in the spring, set them. In from seven to eleven years the ends which were in the ground had mostly rotted, while the parts out of it kept sound. I then took them out, and as the bark had peeled off itself on the other end and the posts were still long enough for the purpose, I reversed them and set these well-seasoned ends in the ground. They have been thus used for several years, and as yet I see no tendency to rot, though I suppose they will not endure so longas if the timber had been cut in the summer and then well seasoned before setting the posts. Rails cut in the winter, though laid up high and dry in a fence where they can season well, often rot rather rapidly.—*Cor. of N. Y. Tribune.*

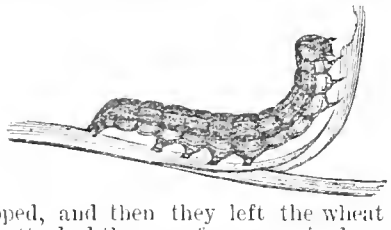
The rot in timber is sometimes facilitated by the depredations of wood-boring insects. Their galleries are often penerated by moisture, which is retained therein and consequent decay communicated to the approximate parts. If timber is cut *before* the wood-boring insects deposit their eggs, and especially such insects as are in the habit of ovipositing on living trees, such timber will be more likely to escape the ravages of insects than it would be if cut *after* that period. There are some people yet to be found who place more confidence in certain zodiacal signs than they do in precautions against insect incursions. In short, some of the French chemists have

*"PSYCHE" is the organ of the Cambridge Entomological Club, established in 1874. A monthly bulletin of entomological news, containing among other things a bibliographical record of all the entomological literature published throughout the world. Edited by George Dimmock, B. Pinkman Mann, A. J. Cook and C. C. Eaton, Cambridge, Mass.

long ago demonstrated that wood saturated with lime and other *et ceteras*, will continue sound a much longer time than when not so prepared. There are many wood-boring insects that carry on their boring operations between the bark and the wood, therefore the bark should always be removed from fence posts and rails.

A SUPPLEMENT TO THE ARMY WORM.

During the advent of the "Army Worm" in the month of June last, some people who professed to know all about it, alleged that we had not the *true* Army Worm (*Leucania unipuncta*) in Lancaster and Chester counties the present season, and as *we* had stated in a previous paper that we *had* it, so far at least, as Lancaster county was concerned, we said nothing by way of contradicting this denial, but quietly gathered worms from various localities in the county, placed them in boxes containing a quantity of earth and covered with cotton gauze. These had been found feeding on wheat, rye, timothy and corn; and although tolerably uniform in shape, lineations and other characteristic markings, yet greatly variable in size and color, and this variation in color had no relation whatever to the size of the worms. Some were very large and light-colored, and some were very small and dark-colored, but in all the heads were the same, and all had the dark-glazed spots on the outside of the prolegs, and all were similar in their habits, feeding voraciously at night, and remaining quiet or hidden during the day. The largest number of the light-colored worms were taken on the corn along the margin of a wheat field, where they had been previously located, but the wheat ripened before they were fully de-

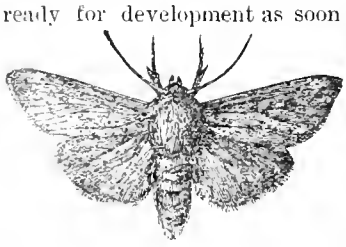


veloped, and then they left the wheat field and attacked three or four marginal rows of the corn field. Those taken from the wheat fields were uniformly dark-colored, and those on the timothy were both dark and light-colored. We incarcerated them from the 20th to the 25th of June, and before the 1st of July all that were able had burrowed in the ground. A few of them pupated and produced the mahogany-colored and anally spined pupæ. On the 12th of July the first moth appeared, and a true *unipuncta*. Although the moths also vary in color, there is less variation in them than there is in the larva, and we mention this here because it had been previously stated very frequently that they were very uniform in color. Can the plant-food have anything to do with the coloration of the worm? We never before noticed a greater variation in the color of worms.

Never but once before did we notice so large a proportionate number of worms infested by parasites, except, perhaps, on a single occasion. We once received from Chambersburg, Pa., twenty-one or two specimens of the *pupa* of the "White Cabbage Butterfly," (*Pieris rapæ*) and seventeen of them were infested with a small Hymenopterous parasite, (*Pteromalus puparum*,) and out of the whole number we only succeeded in rearing three females and one male butterfly, but we bred at least fifty of the parasites, most of which we permitted to make their escape. Even so most of our army worms were infested by at least two species of parasites. Some were infested by a large, white, spindle-shaped maggot (only one in each) which we presumed were the larvæ of a species of "Tachina fly." These may have proved *Exorista leucaniæ*, or *flavicauda*, of Kirk and Riley, but from unfriendly surrounding conditions we failed to develop the fly. But not long after the worms burrowed into the ground, or even before they had all accomplished that change we noticed scattered over the surface of the earth, or adhering in clusters of from three to twenty small white silken cocoons, which only in one instance adhered to the body of a worm. Confining these little cocoons in a separate box, we bred a large number of what seems to be Walsh's Military Microgaster (*Microgaster militaris.*) With these and other parasites, besides a number of predaceous ground-beetles, birds, chickens, skunks, pigs, and unfriendly meteorological conditions, the Army Worm, under ordinary circumstances, has not a very great chance of becoming either numerous or destructive in Lancaster county, or in Pennsylvania. Indeed, we believe its presence and its destructions were largely overrated, even where it occurred the most abundantly. We did not visit a single locality, where they were reported bad, that we had not to hunt a considerable time before we could obtain what specimens we wanted. It is true, we only visited those localities during daylight; but, judging from the damage done, and the little apparent difference in yield between the infested and the non-infested districts, the loss was very limited indeed—hardly worth mentioning.

We have noticed the Army Worm in Lancaster county almost as long as we have noticed the "Red-legged Grasshopper," (*Caloptenus femer-rubrum*,) and we presume the possibilities of either of them becoming a *scourge* are about equal; but although occasionally both have done some damage to the crops, yet, it cannot be said to have amounted to a calamity in the presence of either. The exact periods and number of their broods cannot be regarded as clearly defined. Among the worms observed about the middle of June, were some fully developed, and some not more than half an inch long, and the difference between the periods of their maturity could not have been less than a week or more. The earliest of the moths we noticed must have evolved between the 10th and 12th of July. Of course, it cannot be presumed that moths bred so early would survive through the warm, growing months of July, August, September and October, and then hybernate all winter in the moth state, and only deposit their eggs next spring. We have found a few straggling Army Worms as late as August and September, and these we presumed to be a second brood. The first brood doubtless deposit their eggs on the grass or grain in the vicinity of their place of evolution, but having ample wings to fly with, there would be nothing to prevent them from seeking a new locality if their natal one was unfavorable to their perpetuation. We have seen moths and butterflies, too, flitting about on exceeding warm days in midwinter, and we have had them evolve from the pupa in the house under similar circumstances, but this affords us no reason to infer that they had been previously hibernating in the moth state, any more in the one case than in the other. Some two or three years ago a specimen of *Pieris rapæ* flew into an open window of the *Intelligencer* printing office, in Lancaster city, on the 20th of February, while the ground was covered with snow. But the day was very warm, and doubtless the pupa was exposed to the sun's concentrated rays, and was prematurely stimulated to evolution.

Frequently an unusual number of common flies may be noticed when there is a succession of two or three very warm days in midwinter. When a sudden change to a low temperature occurs, the flies will likely also as suddenly disappear, only to reappear a week or ten days hence when the warm temperature returns. Although these flies *may* hibernate during the cold interval, yet it does not follow as a matter of course. When the cold winter weather commences it may overtake flies and other insects in various stages of development—eggs, immature and mature *larvæ*, and differentiated *pupæ*. These, like the buds of a tree in their expansion, are ready for development as soon as the surrounding circumstances become favorable to their growth. It is the same with many insects; a maggot or grub may be transformed to a pupa, and a pupa may evolve a fly, a moth or a butterfly; and there is, therefore, no necessity in presuming that the insect may have been hibernating in the imago state during the long and varied winter season. We have frequently found caterpillars feeding under cover of shelter during warm winter days, and this has been repeated as often as these alternations of temperature occurred, without injury to the insects, provided they were not too frequently saturated and subjected to alternate freezing and thawing. Army Worms and cut worms are subject to the same contigencies. We have seen Army Worms (both *unipuncta* and *albilinea*), immature and mature, after the 25th of September, and common cut worms every month in the year. Our theory, therefore, is that none of either the larvæ, the pupæ or the imago of the *first* brood of the Army Worm ever survive the winter following their advent; and through the contingencies above enumerated, it very seldom occurs that there is much of a *second* brood, and in this latitude no *third* brood at all, although there may occasionally be such an appearance. It is, therefore, the second brood, possibly as a *larvæ*, probably as a *pupa*, and perhaps as a belated gravid female that bridges the race over a supervening winter. It frequently occurs that the moths of species allied to the Army Worm moth are found imbibing the neter of wild flowers as late as the month of November. These, in some cases, may survive the winter and oviposit in the spring, and if they are so found, faded and mutilated, it is likely they have survived by *hibernation*.



Briefly, then, we have a greater or less number of Army Worms with us every season, scattered over the spring, summer and autumn months, and hence the *possibilities* of a redundancy of them always exists. But at the same time there is no insect subject to more fatal contingencies, more easily accessible, or that yields more readily to simple remedies for its destruction or prevention, if only ordinary vigilance is observed. Although possible, we do not think it very probable that there ever will be two Army Worm seasons in succession of equal malignancy. Still, to be on the safe side, we would not advise the relaxation of any means necessary to guard against their destructive multiplicity. Eggs will no doubt be deposited from early spring until late autumn, and these eggs are as liable to be destroyed by parasitic infestation and other contingencies, as either the worm itself, its pupa, or its moth is, so that very probably all the worms of next year will be hatched from eggs deposited next spring by gravid females that have survived the winter in a state of hibernation, or from females which have evolved from pupæ that have passed the winter in the earth in a state of hibernation, (if not from eggs deposited late in summer or early fall) possibly more of the latter than of the former. Gravid female insects, in many cases, possess an immense amount of tenacious vitality, until their eggs have been deposited, after which they soon die from physical exhaustion. So, also, males will often survive for an almost indefinite period, if they have had no opportunity to fertilize a female, but after that event, in most instances, their physical energies are soon exhausted. Indeed, in some species the alimentary organs of the males are merely rudimental or obsolete, and their sole function in the *imago* state, is the fertilization of the females; and many seem

doomed to drag out a bachelor existence, mutilated and shorn of their pristine beauty without ever having *known* any of the sensations of sexual intercourse.

For remedies we refer our readers to the July number of THE FARMER.

JULY RAINS.

The rains we had in the month of July did not come any too soon or continue too long, and have had an invigorating influence upon vegetation of all kinds that stood in need of healthful humidity. The effect they had upon the corn, the tobacco, garden vegetation and grass was magical, and added immensely to the prospects of the husbandmen of the county and country. It is true these rains were not evenly distributed, and hence some localities may have received more than their share, or more than they really wanted, whilst others received less or were not reached at all. This is an event, however, that is likely to occur, to a greater or lesser extent, every season in so vast a territory as that of our Union; but the facilities for transportation are so great that an equilibrium can be asily effected at any time with little trouble and at a reasonable cost. Corn and tobacco are reasonably promising, and at the time we go to press much of the latter crop will have been gathered and housed. From indications, every day more manifest, the melon crop is a "booming" one, and hence the market is, and has been, full of them. This is a crop that is increasing every year, and the demand is becoming greater; and, judging from the daily supply and consumption, there surely must be "money in it." A reasonable consumption of these luscious *gourds* is, no doubt, healthful, but like tobacco, which largely ends in smoke, so melons end mainly in fluid, and nobody gets fat on them. From the aqueous quality of melons they require rain at the proper time for their complete development, hence the July rains had a salutary effect upon them. The potatoes, too, it was facetiously said, were heard to cry, "lie over" to their encroaching companions of the hill, and to their neighbors in the next row. A complaint early in the season had been heard of a case or two of *rot*, but this could not have been to any great extent, and perhaps was only local. Cabbages, red beets, radishes and turnips all drank in the July rains, and "waxed fat," or at least "as fat as may be," albeit the latter two proverbially produce "no blood." The July rains made the trees greener and cleaner, the flower gardens and lawns more brilliant and luxurious, the air purer, the streets, sewers, and roadside gutters renovated, and divested of their unwholesome accumulations; and if we hear of "yellow-jack," cholera and ague we may infer it comes from places where the people have not had the benefit of drenching July rains and purifying northwest winds.

Of course, these rains were sometimes accompanied by tornadoes, floods and other destructive meteorologic-phenomena, but these may only be the effects of the unbalanced condition of the natural world, and always *will be* until the millennium of the moral and physical universe. July is the midsummer month, and often gives tone to the growth that follows it. If the ground is well saturated in July there is more hope in the ripening process of August and September than there would be if we only had hot, dry and enervating weather in July.

THE "GOLDSMITH."

About sixty years ago, when we were a "wee bit bairn," we were wont to amuse ourself by tying a long thread to one of the hind legs of a green-and-bronzed beetle (or "bug" as it was usually called) just to hear him "buz" and "fly him," as urchins now do their gum-elastic balloons. This bug was then locally known among boys as the "Goldsmith," and the boy in the village and rural district, at least, who did not know or had not "flew'd" a Goldsmith, would have been considered very verdant indeed. It, perhaps, may have been different in large towns and cities, although we know them to have been common in some towns of 30,000 or 40,000 inhabitants; nevertheless, we often met persons forty or fifty years of age who have never seen the insect, or who have seen it for the first time. Perhaps not a single year has passed since then that we have not seen more or less of them, no matter where we may have been. We by no means recommend the *flying* of Goldsmiths to boys as a source of amusement, and under the admonitions of our Sunday-school teacher, we eschewed it long before we advanced beyond the bounds of boyhood. How the Goldsmith came, or where it finally went to, were matters we then knew nothing of nor did we trouble ourself much about knowing. Neither did we know that it was noxious in any form; we generally found it most abundant about potato and watermelon "patches," and not excessively abundant anywhere. Occasionally one would be detected on overly ripe or decaying peaches or plums, but nothing amounting to a complaint was made about them. When, twenty years later, we commenced the collection of *Coleopterous* insects (Beetles) the Goldsmith was conspicuously among our first subjects; and then, too, we learned that its proper scientific name was *Gymnetis nitida*, so named by Linnæus, and that it belonged to the family CETONIIDÆ, section LAMELLICORNIA. (The original Linnæan name, however, was *Scarabæus nitidus*; it was Mac Leay that erected the genus *Gymnetis*, in which it was subsequently placed.) *Now*, however, it is referred to Dr. Burmeister's genus *Allorhina*, and the family name is suppressed, leaving it in the family SCARABÆIDÆ, as recorded in Crotch's Check-List, according to which we have neither a true *Cetonia* nor a *Scarabæus* in North America. Those insects included in the genus *Cetonia* of our earlier entomologists, are now merged in Burmeister's genus *Euryomia*. True, it was utterly impossible to retain all the Lamellicornia in the genus *Scarabæus* that Linnæus included in it, and disintegration, therefore, became a necessity, but this had become so excessive that suppression and consolidation became a greater necessity; but the inconvenience all this is to those whose time, means and opportunities are limited, and who are still stimulated by desire, is greater than the uninitated can imagine.

The Allorhinians (Goldsmiths) and the Euryomians (we absolutely know no common name for these) have, however, been cutting something of a figure in Lancaster county for the past two years, and we have thought it about time that they and their actions should be placed on record. Last summer Mr. A. S. Keller, of Manheim township, on several occasions brought us specimens of his finest and ripest Susquehanna peaches, which had specimens of *Euryomia fulgida* and *melancholica*, perfectly buried in their luscious pulps, and so perfectly intent upon their luxurious repast were these insects that they did not seem conscious of their removal from the trees and their transit of two miles to the town. From one to four or half a dozen of the smaller species were found in a single peach. What could we do but recommend hand-picking? But then, as he facetiously alleged, it would be something like knocking the knots out of a knotty board, the peaches would be worth less with the "bugs" out than with them in. As a preventive we advised him to detroy all the white, crescent-shaped "grubs" he found in the ground, decayed wood, or elsewhere. We have found *Pelidnota* (six spotted grape-beetle) and *Osmoderma* in much decayed wood, lying on the ground, and probably these may be found under similar circumstances.

On the 30th and 31st of July, Messrs Daniel Smeych and William Thackara both brought us peaches, in a similar manner infested by the "Goldsmith," (*Allorhina nitida.*) In both cases the peaches were partially, or almost totally, decayed. One peach had seven of these insects upon it—two of them buried in its pulp, and the other five on its surface, which had several indentations, where they had been feeding. These insects can enter a ripe peach without using their jaws at all; they are perfect rooters; and in proportion to their size have as great rooting powers as the wild boars of the "Black Forest." Their rooting and pushing power can be easily tested by grasping one of them in the hand, and their attempts to push their way out between the fingers will be very convincing. We are not acquainted with the habits of the *larva*, except theoretically, but we think it will be found similar to that of *Cotalpa*, a white grub feeding on the roots of vegetation under ground and requiring three years to effect all its transformations. There is much in economic entomology that the farmer, the gardener and the fruit-grower must learn and apply as the contingencies affecting his occupation may occur. He ought to inform himself on the subject of insect transformations and the forms insects assume in the various stages of development. A man, for instance, may entertain sentiments towards a beautiful moth or butterfly bordering on the romantic, and yet in the larva state that beautiful insect may be a hideous, devouring worm, from which he would turn with horror or disgust. Verily, husbandmen ought to *know*.

THE SUGAR-BEET QUESTION AGAIN.

We have, as we tried to do, considered the enterprise of making sugar from beets in this country with a sufficient profit to encourge the business fairly and justly; and we have frequently averred that thus far we are not satisfied with the result. We have been asking again this season for clear, satisfactory statements of the enterprise so far as it progressed in the several places where it is being tried, but we have received none. The company in Maine, to which we have referred on several occasions, seems to have been the most firmly established, having State assistance—and from the secretary of which a communication appeared in the *Telegraph* some time ago, to correct some of our statements and show the progress made and the encouraging prospects ahead—does not present, if we are to believe some later information received, satisfactory encouragement as to the future.

The principal cause is what we adhered to in the beginning, that the cultivation of beets by the general farmer, at the price offered, would not be inducement enough to extend their growing so as to furnish any amount that might be demanded for the manufacturers. A good drawback would be the weight of the roots and the cost of transportation. We now hear that the Maine farmers this year declined to renew their contracts at last year's rate, on the ground that there was not sufficient profit in it: and the appeal of the company to the farmers of other States has met with but little success.

We repeat our regret that this should be the result, and still hope that there will be some clear way out of the difficulty. We set down in the very beginning that, in view of the cost of raising and supplying the beet, from its bulky nature, and especially of the high cost of labor here over what it is in France, Germany, &c., where beet-sugar-making is a success, we would have an obstacle of the most serious character, and which thus far had failed of being removed.—*Germantown Telegraph.*

It is perhaps well that the above, from the *Germantown Telegraph* should have a simultaneous showing with the many articles now publishing in relation to subjects of "Beet-culture" and "Beet-sugar." If it really is a successful and profitable industry it will become abundantly manifest in spite of all unfavorable comments, no matter from what quarter they may come. Farmers, generally, soon find out what crops pay them best, within the limitations of their present experiences, although it is possible they may not know just what might be made more profitable in the end, under more intelligent and advanced culture. There are two *facts*,

or *factors*, involved in the question, as a basis of operations, that must be apparent to all, and these are, *first*, that many millions of dollars are annually sent out of the country to pay for foreign sugars; and, *second*, that the consumption of sugar in the country is immensely increasing. These two factors are arrayed, and have always been, against us, and the question is: How can we utilize them?

As a prospective compensation for this adverse state of things, we have the sugar-cane, the various species of sorghum, the sugar maple, the different species of sugar-beets, the common cornstalk, and the water-melon, all of which yield more or less abundantly the saccharine fluids from which the syrups and sugars are condensed. And not only this, but there is perhaps not a single district in the whole country, (less in magnitude than a county) in which one or more of the above sugar-bearing plants cannot be cultivated; the great question being, how to make their cultivation profitable? While colonial Virginia and the Carolinas were cultivating tobacco, had their tobacco lords and were paying their taxes to the crown in tobacco, the colony of Pennsylvania never dreamed that she possessed the possibilities of ever superseding the "Old Dominion," in the cultivation of a plant, that had practically stood her as a currency. Does anybody suppose that Southern Pennsylvania ever *would* have become a tobacco-growing district if she never had bent her energies in the direction of its culture? It seems like a reflection upon the moral intelligence of the age, that the great sugar interest of the country should remain undeveloped, and that the energies of the people should become concentrated in the production of a substance which is intrinsically so valueless as tobacco. For the sake of the *end* the sacrifices necessary in the development of the sugar interest should be patiently and perseveringly endured. More light, more intelligence, more truth and more pluck in the enterprise are needed.

THE "WORM-SNAKE."

By this compound name I do not refer to any particular snake that resembles a worm, nor to any particular worm that may be likened to a snake, but to an army of small worms, that in their migrations usually arrange themselves in a long procession (largest in the middle and tapering toward the ends), that approximates to the form of a snake, as they travel from one locality to another.

Mr. Adam H. Eaby, of Spring Garden, this county, reports such a phenomenon observed upon his premises, as reported to me through Deputy Register Bauman, on the 22d of the present month (July). Mr. E. was apprehensive that this army of little worms might possibly be the infant state of the "army-worm," and therefore he very promptly scalded them, but we can assure him here upon the very threshold of the subject, that they are not as near related to the "army-worm" as a mouse is to an elephant—they belong to an entirely different order of insects. What they feed on is not very clear, for, so far as my knowledge of them extends, they have only been observed in their migrations, coming up out of clefts in the ground, and after traveling some distance returning thither again.

Where They Are Found.

They are usually found in moist or shaded places and covered by a protecting slime, or mucus, and when exposed too long to the sun this mucus dries and the worms perish. Two of these "worm-snakes" have been witnessed by myself and others within the City of Lancaster, one on the premises of Judge Patterson, about fifteen years ago, and one on the premises of Godfried Zahm, two years ago. In the latter instance they directed their course across a brick pavement, where they encountered a hot afternoon sun, and all perished. The object of these migrations is, perhaps only conjecturable—a more favorable feeding ground, or a more proper place in which to pupate, and undergo their final transformation, have been suggested.

Observed in the Country.

A large army of these little worms, or rather *maggots*, was observed on the premises of Dr. A. K. Rohrer, of Mountville, in the summer of 1870, directing its course towards a rosebush, and when the rose was subsequently infested by the "slug" (*Selandria Rosæ*,) it was supposed these maggots were the origin of them, but they differ as much from the "rose-slug" as they do from the "army worm." The late Jacob Stauffer noticed a procession of these worms crossing a road on a cloudy day, between Mount Joy and Manheim, about 35 years ago, which was fully ten feet in length, and when the line was abruptly broken, it soon united together again.

The Earliest Record of Them.

The earliest record of them was made by Gaspard Schuenfelt, on the continent of Europe, in 1603, and the same phenomenon was witnessed by Jonas Ramus in 1715. Mineville, a French entomologist, records one of these maggot processions 30 yards long, and the same author records a case where the head of the column was changed from its normal course, and gradually brought round to the rear, and hence the worms marched around in a circle for a whole day.

These worms, or maggots, are the larvæ of of a species of two-winged fly, belonging to the family *Tipulidæ*, which includes the crane flies, mosquitoes, gnats, midges, Hessian flies, etc., etc. Hence they are *Diptera*; the "army worm" is a *Lepidoptera*, and the "Rose Slug" a *Hymenoptera*.

Their Habits.

The habits of the Tipulidans vary very much—especially their feeding habits—some living during their larval season in stagnant waters. Some form various kinds of galls on the leaves and twigs of trees and shrubbery. Some feed on the juices of the stalks and the tender grains of wheat, and others burrow in the soil and feed on the roots of vegetation, among which must be classed the *subject* under consideration. They belong to the genus *Sciara*, of which there are several species, but their descriptions are not accessible to me at this time. Our species has been "booked" *Sciara taxonura*, but whether correctly or not, is more than I am able to affirm without qualification.

The Largest Specimens.

The largest specimens are not more than a quarter of an inch in length, have a black band, and although not so abruptly blunt at the hind end, yet about the color and thickness of the maggot of the common house fly, (*Musca domestica*). These insects never have appeared, in this or any other country, that some unnecessary alarm or superstition has not been associated with their presence. The peasantry of Europe interpreted their presence as good or bad luck, according to the action of the worms in certain contingencies. When they discovered one of these slimy and ropy processions of worms they would throw down their jackets at the head of the column. If the worms moved in a direct line over them it was an omen of *good luck* in their crops, but if they changed their course, and moved around the obstruction, it was an omen of *bad luck*; but *now* and *here* people place more confidence in good cultivation than in these omens.

ACKNOWLEDGMENT.

We are under obligations to Reuben Weaver, of Rapho township, for a most magnificent and luscious bunch of "Worden's Seedling" grapes. The grape is a seedling of the "Concord," but in our humble opinion it is superior to the parent variety from which it was produced. It is earlier, being in good eating order on the 12th of August—about cotemporary with the "Hartford Prolific." It is sweeter, and has a more tender skin than the Concord, it is as prolific, and bears the climate as well. The berries are as large, and the clusters are more compact than the average Concord. It is a rapid and luxuriant grower; and altogether, quite as hardy as our most hardy native varieties, and worthy of general cultivation; indeed, if we were confined to a single variety, we believe we would chose Worden's Seedling. Mr. Weaver has had this grape in fruit for three successive seasons, and the last crop was superior to any of the prior ones. Mr. Weaver is a practical and intelligent grape culturist, and did more to develop and demonstrate the good qualities of the "Martha" than any other man in the county of Lancaster. We paid a visit to his extensive grapery some years ago, and were favorably impressed with its thrifty appearance. It is in far better condition now than it was then. These desirous of securing the best varieties should visit this vineyard, in the vicinity of Mastersonville. About 300 vines of the Worden's Seedling are growing there at this time, and people can see for themselves.

THE COMING FAIR.

We would respectfully admonish our enterprising patrons not to forget the Fair of the "Lancaster County Agricultural and Horticultural Society," on Wednesday, Thursday and Friday, 29th and 30th of September, and 1st of October next. It may be too late for the earlier varieties of grapes and peaches, but of the later kinds, as well as apples and pears, there may be an abundance, especially of apples, for the reports of this fruit from nearly every district of the county are quite favorable; whilst of tobacco, cereals, melons, potatoes, tomatoes, and other species of vegetation, including plants and flowers, there will be an abundance.

QUERIES AND ANSWERS.

A THISTLE.

GAP, Pa., August 6, 1880.

PROF. S. S. RATHVON, *Lancaster, Pa.:* Inclosed find a species of thistle. This weed has been in my lot for several years, and seems hard to get rid of. There are none of my neighbors who seem to know anything of it, or what it is called. I think I got it through buying wheat screenings that I bought for my chickens, at least then I first dissovered it. Please examine it and give a name for it if you can.—*Yours respectfully, D. Z. Lantz.*

The "weed" came duly to hand in good condition. It belongs to the Amaranth family (AMARANTACE,) and is very common in this county, and also very useless and tenacious. Many a time have we had our bare feet and shins pricked by it in the fields along the Susquehanna river. There are *six* genera and about *sixteen* species with many varieties of this family belonging to the flora of the United States, bearing the common names of "Prince's Feather," "Cockscomb," "Pigweed," "Thorn Amaranth," "Water Hemp," &c., &c. This species is the *Amarantus spinosus*, and is distinguished by the spines or thorns growing from the axils of the leaves. Some of the species are cultivated in flower gardens, and have beautifully varegated and brightly colored leaves, with enlarged polygamous flower heads; but the wild varieties grow in fields, gardens or any waste places where they are allowed a foothold. We should think they could easily be exterminated by pulling them up by the roots as soon as they appear, and never allowing them to mature their seeds. These plants seed profusely, and in a very short time one plant would be sufficient to stock an acre. The seeds are small, black and glossy, and are capable of remaining a long time without germination when the surrounding circumstances are unfavorable to their growth. When they get into town lots it is difficult to get rid of them without a simultaneous effort; because, if one prudent man even *does* destroy all that grow on his premises, they may be restocked from the premises of his imprudent or negligent neighbors. In weeding them out the work should be thor-

oughly done, otherwise they will grow up from the roots again; but evidently the soil may contain more seeds than it can sustain, hence many of them may lie dormant, and only germinate after the first, second or third crop has been removed, as the case may be. Our correspondent may be correct as to the manner of their introduction into his lot, for "*screenings*" are likely to be composed of all sorts of field refuse in the way of seeds, and these hard seeds may pass through a chicken and germinate afterwards.

THE HELIOTHUS ARMIGERA.

Mr. H. M. E., Marietta, Pa.—From the description of the worms that you find boring into the fruit of your tomatoes, which you gave me on the 2d inst., I have not much hesitation in pronouncing them the same that we often find boring into the ears of the green corn, between the husk and the cob, namely, the *Heliothus armigera*, commonly called the "Corn-worm" of the North, and "Boll-worm" of the South. It is not only an omnivorous feeder, but also a sort of cosmopolitan in its geographical distribution. It has been found devouring green corn, (and, exceptionally, ripened corn,) tomatoes, both green and ripe, cotton-balls, young pumpkins, green peas, string beans, hemp-heads, tobacco, gladiolas, &c., according to the records of different observers; and has been found in England, France, Japan, Australia, our Southern, Northern and Middle States, and perhaps elsewhere. There are usually two broods in a season in this latitude, and a single female is capable of depositing about five hundred eggs during her lifetime. Of course the young also feed on other parts of the plant, because when they are found on the fruit they are well advanced in size. The moth expands an inch and a half or more across the extended wings, which are of clay-yellow color, with a dark oblong spot on each. There seems to be no remedy for this worm but hand-picking. The moths may be diminished by setting shallow dishes containing molasses and vinegar and thus trapping them. Perhaps a lamp and water pool would do as well.

A Bit of History.

In the summer of 1847, whilst walking along the "tow-path" of the Pennsylvania canal, about one mile west of Marietta, we observed in a field between the canal and the Susquehanna river, a plant about two feet in height, with a single rose-colored flower on the apex of the stem, which attracted our attention. But as we were in pursuit of other game, we left it untouched. On mentioning the subject to Mr. Israel Goodman, he expressed a desire to possess it, and subsequently we visited the locality and brought the plant away with us, and he planted it in his garden. In the autumn of 1848 we removed from the town and located at Lancaster. Whilst on a visit to Marietta in the early spring of 1850, Mr. Goodman called our attention to the plant, it having greatly increased in size, more than a dozen of the leafless stalks then constituting the group. He cut away a portion of the root, which we brought away and planted in our garden in Lancaster, and it grew luxuriantly, but for two or three years we could never raise a flower, although it developed a number of buds. Just about the time the calyx began to open and the flower to expand, something would eat a hole in the side and devour the interior contents; but the leaves were untouched, and we never could discover an insect or any other animal preying upon it. Perhaps we ought here to inform the botanic reader that the plant belonged to the family MALVACEÆ, and the species as nearly as we could determine, the *Malva sylvestris*, or "High Mallow." About 10 o'clock one evening we had occasion to go into the garden, in the vicinity of the plant with a light, and then and there we discovered five or six naked caterpillars of the "cut-worm" kind, with their bodies about half way introduced into the bolls or buds of our mallow plant, and we captured the whole of them. From these we bred a clay-colored moth, neither *larva* nor *imago*, differing materially from *Heliothus armigera*, and we have always believed it to be the same.

THE GORTYNA NITELA.

Mr. J. H. H., Manheim, Lancaster county, Pa.—I must beg your indulgence for not having before answered your queries, in June last, relating to the small striped worms you found boring into the wheat stalks at the time it was infested by the "Army worm." These worms on the 16th of June were over half an inch in length, very dark in color (nearly black), with a dull, yellowish head and caudal segment. They have three yellowish, longitudinal lines. The dorsal line is entire from end to end, but the two lateral ones are obliterated on two or three of the intermediate segments and replaced by black, a characteristic they retain throughout their entire larval development, although they change very much otherwise. They excavate the hollow stalks of wheat, boring through the joints from one hollow tube to another, and when the wheat stalk gets too ripe, and their bodies too large to live comfortably in it, they cut a hole through the sides of the wheat, and make their escape through it, and seek some large plant to finish their larval career. I have detected more or less of these little worms in the stalks of wheat nearly every season for the last twenty years especially along the shaded margins of fields where the grain continued the longest green. I have not been able to breed the moth from those I found on wheat, but later in the season I have detected them buring into the stalks of Amaranths, Dahlias and Lady-Slippers, on my own premises, and, putting "that and that" together, I doubt not they are the larva of *Gortyna nitela*, commonly called the "Stalk-borer." In addition to the plant named this worm bores into the stalks of corn, potatoes, tomatoes, asters and other garden herbage. The larva, when mature, is a full inch or more in length. The body of the moth is ¾ of an inch long, and it is an inch and and a half across the expanded wings. Color, light ashy-brown, with a whitish diagonal bar across the front wings about one-third from the outer end. Fortunately these worms seem to be solitary in their habits, each one being engaged on his "own hook," and rarely more than one found in a plant. Hand-picking appears to be the only remedy for them. The moth appears in August and September.

A CURIOUS BIRD.

QUARRYVILLE, PA., Aug. 7, 1880.

PROF. S. S. RATHVON—*Dear Sir:* I send you the bird which we shot on Raub & Edward's dam while gunning for frogs. If he is anything rare please let us know through THE FARMER.—*Yours very respectfully, L. T. Hensel.*

Your bird was duly received, and, although not as common as it was forty or fifty years ago, yet it is by no means rare in this county. It is an immature specimen of the "Night Heron," or "Quay bird" (*Nyctiardea gardenii.*) Its favorite haunts are in the vicinity of swamps, where it feeds on fishes, frogs and water insects and their larvæ. Usually they build their nests in tree tops, but they sometimes also build in thickets. They feed most at night, but also come abroad in daylight when pressed by hunger.

ENTOMOLOGICAL.

CATERPILLARS.

A gentleman has discovered a method of keeping caterpillars off trees that may prove of great value. The thought occurred that he could prevent them from ascending his trees; he formed a ring round the trees a few feet from the ground with a liberal quantity of axle grease. The crawlers ascend till they reach that ring, and dare not cross it. The same result may possibly be attained with the use of other viscous substances; but however that may be, this experiment has resulted in perfect success and is worth a thorough trial. If this success be permanent, the idea is a very important one.

USE OF GUANO FOR GRAPE PHYLLOXERA.

At a recent meeting of the Paris Academy of Sciences Dr. Hamm advised the application of sulphide of carbon with infusorial earth or guano as an absorbent, believing that more of the sulphide can thus be applied without injury to the roots, and that evaporation will thereby be lessened.—*Am. Entomologist for July.*

ECONOMIC ENTOMOLOGY IN THE PUBLIC SCHOOLS.

The only way to bring this practical science to agricultural minds generally, to the class with whom it is of great importance, is, to require that it be taught in all the public schools. It is a kind of knowledge which the young country student grasps easily and successfully when deprived of its unessential technicalities. Of such practical consequence is it that it had better be taught even at the expense of almost any other study of the usual courses, and some attention to it would be a great relief from unnecessary problems in abstractions which are often inflicted to a useless extent in early training.

It is a sad consequence of the failure to teach natural science in the public schools that our cultivators do not recognize their own interest and duty with reference to insects, and need to be forced by law to a sense of its importance. Words persuade, but examples convince. Let every intelligent farmer help demonstrate it, for the good of himself and others.—*W. S. B. in Am. Entomologist for July.*

EXPERIENCE WITH THE IMPORTED CABBAGE WORM.

I would like to make observations on the Cabbage Worm this year, and wish to get all the light I can that will help me in my study. I grow from 3,000 to 5,000 early cabbage and from 17,000 to 25,000 late cabbage, each year. During 1878 I had one flat of two acres of extra fine cabbage on a clover and timothy sod. Most of it was manured with stable-manure one year, the next year with a coat of (heavy) ashes, and the following winter a heavy coat of tankage from the slaughter and packing house (heads, feet, etc., steamed). In the spring the sod was planted to cabbage.

The result was an immense crop. The butterflies were very numerous the whole season, and fears were expressed that I should have no cabbages, on account of the worms. The crop, however, received very slight damage from the worms, except on the outsides of the patch to the sixth or tenth row in. When selling in the fall a customer called my attention to the chrysalis on the cabbage, which, upon being opened, showed something that looked like maggots, so that I think there is a parasite at work.

We have observed that large patches receive much less injury than small ones. It is very rarely that cabbage is raised with any success in small patches.

I stated, at the Indiana State Horticultural Meeting, that if we manure heavily, cultivate thoroughly, and grow in large patches, we can raise cabbage.

Gov. Furnas remarked that we ought to keep them off the outsides of the patches also. This is the point on which I am anxious to be informed; hence would like to aid you and the other noble investigators to find out how it is to be done.

From what I can learn, the hot-water process (lime, pepper, coal-oil,) have proven a failure, at least partially so; and to catch the worms or butterfly is a big job.

In our city an Irishman raised a splendid crop of cabbage by sprinkling the plants with

a decoction of May-apple root. If this last remedy is successful, it is one that can be easily obtained, at least in the West.—*American Entomologist.*

CONTRIBUTIONS.

NEW MEXICO.

ALBUQUERQUE, N. M., July 12, 1880.

DR. S. S. RATHVON, Lancaster, Pa.

My Dear Sir: I have received your esteemed favor of the 2d instant, and infer from its contents you desire reliable information concerning our mining prospects, vicinity, etc., etc. In reply I beg leave to say that an extended personal acquaintance with the mining regions of the Territory and a knowledge of similar districts in other localities outside of New Mexico, gained from reports of persons now here who have worked in the mines elsewhere, induces the belief that this district, the Sandia and Manzano, far surpasses them all in mineral richness. The extent of this mineral-bearing district is about fifteen miles square, and while it has not been by any means prospected as it should have been, shows within its limits mines that run high in precious metal. The Star mine, for instance, which has been opened to a depth of but thirty feet, shows by assay $128 to $161 in gold. The assay of 128 was made from ore taken from six different places in the shaft, and is considered by all who know the mine a true average test of its real value per ton. On this same vein are two other shafts which show in pyrites of copper an average of thirteen per centum of copper and eight ounces of silver ore per ton. There are six other locations in the district in which the Star mine is located which show equally good. Another thing, the veins are not mere streaks of pay ore, but their width is almost marvelous, that of the Star above referred to being fully thirty-five feet wide between wall rocks. This in itself makes the mines extraordinarily valuable, for while in some sections the pay streak of true vein is only a few inches wide, here they run from thirty to forty feet from side to side. North of the district above described other mines have recently been discovered, which promise to be very valuable in silver. They are only about four miles north, and like the Sandia and Manzanas, have in the immediate vicinity an abundance of both timber and pure, soft water. In this special neighborhood I know of only seven locations having, as yet, been made, as the parties who first discovered it have been keeping it quiet until they and their friends could have the first choice of locations. From what I know of the district and its formation I am positive the best locations have been overlooked, and if my interests in other localities did not occupy all my time and attention, I would soon acquire property there. As to our climate, none can be better suited to mining operations than this; for here we work all the year round in both winter and summer, and find no inconvenience. As you know, I am far from being a robust man, and yet during the whole of last winter, I lost only two days from mining by reason of inclement weather. We suffer neither the extreme of heat nor cold, but enjoy an agreeable temperature all the year round. If your son should decide to come here, or any of your friends visit Albuquerque, I would take great pleasure in showing these mines, and as they are located only some fourteen to eighteen miles from this place, the journey, lying through a very picturesque country, would be more like a holiday jaunt than a visit to a mining camp. In looking over what I have written concerning the newly discovered silver district, I find I omitted to state that the average taken from top rock, or the exposed parts of the vein, shows a value of from four to one hundred and seventy ounces in silver.

If you desire to use this letter for publication, you are at liberty to use my name as authority for the several statements made.—*Very respectfully, W. T. Strachan.*

SELECTIONS.

CROP REPORTS.

The report of the Agricultural Bureau for July contains the following: The condition of winter wheat averaged 95 against 91 in 1879, and 101 in 1878. It is a slight improvement on the June average, which was 94. The small crop of the New England States is 10 per cent. below the average, owing to the heavy loss in Vermont, where in addition to winter killing, spring drought is complained of. The Middle States report a crop of 3 per cent. above average, in spite of drought and insect ravages in same counties. The Hessian fly is noted in Genesee, New York, and Northampton, Pennsylvania, and the army worm in Suffolk, New York, Cape May, New Jersey, and Kent, Delaware. The general conditions in this section have been quite favorable.

The South Atlantic, Gulf and Southern inland States, all report a heavy depreciation in their crops; the only State south of the Ohio river showing a full average is West Virginia. This whole section will fall off nearly one-fourth on the whole. The general complaint is either drought or rust.

The great winter wheat region north of the Ohio river shows a comparatively high condition, 98 against 101 in 1879. Illinois fell short 7 per cent., but Ohio and Indiana were considerably above average.

West of the Mississippi the crop fell off one-sixth, being but 84 against 89 last year. Missouri, the great winter wheat State of this region, is 7 per cent. short; Kansas, 27 per cent. Minnesota, Iowa and Nebraska present low averages, but their growth of winter wheat is too small to greatly affect the general result. The general complaint is drought. On the Pacific coast Oregon reports 104. The crop of California is generally classed as spring wheat.

Spring Wheat.

Spring wheat averages 91, the same as July, 1879. Northern in New England ranges up to 99. The few counties of New York and Pennsylvania reporting this crop average 93; Wisconsin, 96; Minnesota, 101; Iowa, 91; Nebraska, 62. As the season advanced the growing conditions appear to have been less favorable to wheat growth, especially in the great spring wheat State. Atmospheric causes, together with the ravages of insects, are noted in different parts of our spring wheat region. At present, however; the prospect of this portion of our wheat crop is fully as favorable as last year.

Corn.

As was anticated from the large increase in the area sown in wheat, the area planted in corn shows but little increase from that planted last year. The increase is less than 1 per cent. for the whole country. The New England and Middle States show an increase of nearly 2 per cent., the South Atlantic States decline about 2 per cent., the Gulf and Southern inland States retain about the same area. The great corn-producing States bordering on and north of the Ohio river show a decline of 4 per cent., while the States west of the Mississippi and on the Pacific coast show a lage increase of from 6 to 9 per cent.

Potatoes.

There has been no change in the area planted in potatoes in the whole country, the deficit of one State being counterbalanced by the increase in another. The condition is very favorable, fully as much so as in 1879. New Jersey, Delaware, Maryland, Virginia, and all the South Atlantic States being rather below the report of last year, while the Western and Southwestern States are above.

Wool.

All the States show a wool clip equal to or greater than last year, except New Hampshire, 96; New Jersey, 99; Florida, 91, and California, 99. Kansas reports an increase of 42 per cent., Nebraska, 15 per cent., South Carolina 8 per cent., etc. A vast increase in the Territories is indicated, amounting to 20 per cent., according to our imperfect data. We are afraid to hazard even a guess in regard to the rapid movement of progress in the extreme West, but find that there is far more danger in understating than overstating the case.

THE CARP AND ITS CULTURE.

The carp (*Cyprinus carpio specularis*) is so called on account of the large scales which run along the sides of the body. This is one of the three races of carp recently introduced into this country, the other two being the scale carp and the leather carp, the one entirely covered with scales, the other having few or none.

Three years ago the national carp ponds were established at Washington, in the old swamp and canal near the monument, and many thousand young fish have since been distributed for stocking suitable waters in Kansas, Nebraska, Missouri, Ohio, Indiana, Illinois, Pennsylvania, Maryland, Virginia, North Carolina, South Carolina, Georgia, Alabama, Louisiana, Texas, Tennessee, Kentucky and New York.

Persons desiring them for such purposes can be supplied on application to Prof. S. F. Baird, U. S. Fish Commissioner, Washington, D. C.

In a recent communication Professor Baird expresses great faith in the future of this new fish. He is quite well satisfied that within ten years it will constitute a very prominent portion of the animal food of the country.

Although scarcely known in the United States, and but little more, as an article of extended application, in England and France, the carp is in Germany and Austria cultivated to the highest degree, so as to constitute a notable article of the market supply.

The fish itself is probably of Asiatic origin, and has been domesticated in China for thousands of years. It has, however, been so extensively distributed in Europe as to become, in a measure, a native fish, occurring in public waters as well as in private enclosures. It is, Prof. Baird remarks, emphatically a farmer's fish; and may safely be claimed to be, among fishes, what chickens are among birds, and pigs and ruminants among mammals.

Its special merits lie in its sluggishness and the ease with which it is kept in very limited enclosures, it being a vegetable feeder, and its general inoffensiveness. Trout and black bass require abundant water and a supply of animal food for their sustenance and growth; the carp thrive in shallow ponds, and while not disdaining flies, worms, larvæ, etc., live on the succulent roots and leaves of aquatic plants, seeds as they fall into the water, and other similar substances, and mey be fed very readily upon corn, grain, bread, root crops, raw or boiled, and, indeed, any vegetable refuse.

Their rate of growth, too, is something marvelous, and, as observed so far in the specimens introduced into the United States, is even more remarkable here than in Europe. Among the original fish imported by the Fish Commission from Europe, and which are now only about three and a half years old, are some from twenty-five to thirty inches in length, weighing from four to eight or nine pounds.

The carp thrives best in artificial or natural ponds with muddy bottoms, and such as abound in vegetation. In large ponds it may not be necessary to furnish any special food, but in restricted enclosures, as for instance, those of a fraction of an acre, they may be fed with the refuse of the kitchen garden, leaves of cabbage, lettuce, leeks, etc., hominy or other substances. Grain of any kind is generally boiled before being fed to the fishes, but this is probably not absolutely necessary. The refuse of malt from breweries makes excellent food for them.

The Washington ponds are arranged so that they can be drawn off at will, leaving all the fish collected in a small basin near the outlet. This is for convenience in assorting

the fish, and for selecting such as are needed for other purposes.

It is a prime necessity that there be no predaceous fish in the same pond with carp. Of course, the larger fish will be measurably secure against the attacks of carnivorous species of about the same size, but the eggs and young will become a prey to the rapacity of such associates. As a general rule the fish will thrive best when they are the sole occupants of particular waters, although the association of suckers and chubs would be lesss objectionable than that of sunfish, perch, or black bass.

The carp spawn in the spring, in May and June, and, indeed, under some circumstances, throughout the entire summer. The Fish Commission have young fish that spawned from May to September. They are very prolific, yielding from 400,000 to 500,000 eggs, according to size. The eggs adhere tenaciously to whatever they touch, and for that reason it is very important that a new pond should be provided with floating weeds for such attachments. The eggs hatch out in a few days, and the young grow very rapidly. They feed voraciously upon the so-called frog spittle, the green alga scum so common in frog ponds. Consequently such waters are especially adapted to carp.

Whenever the water becomes chilled down to perhaps 40°, and especially when frozen over at the top, the fish bury themselves in the mud, aggregating in lots of from fifty to one hundred, frequently with their tails projecting, and constituting what is called in Germany, kettles or roses. It is very important that they should not be disturbed under such circumstances. Of course, while hibernating in this way they are not feeding, although they are said not to loose appreciably in weight. In the more southern regions, where the waters do not freeze, they will probably feed throughout the year and make a more rapid growth.

So far, Prof. Baird says, no waters have proved too warm for carp; indeed, they are said to thrive especially well in reservoirs, receiving the condensed waters of low-pressure steam engines, in Germany, of over 100 degrees temperature.

As regards the best plants for a carp pond, Prof. Baird mentions the ordinary pond weeds (*Pontederia* and *Sagittaria*), splatter dock, or pond lily, and, indeed, any of the kinds that grow in the water, with leaves floating upon the surface, duckweed among the number. Those which produce seed, like the wild rice, are especially desirable, as the fish feed voraciously upon them.

The great merit of the carp for cultivation, next to its excellent table quality, lies in its adaptation to shallow and warm ponds unsuited for ordinary fish. The country is full of such waters; now useless, which might be made exceedingly productive; and there are thousands of swamps in every State, which might easily be flooded and stocked at small cost in money or trouble. In Germany many villages maintain at common cost for the public benefit carp ponds of a hundred acres or more.—*Scientific American.*

THE DESTRUCTION OF GAME FOOD.

So long as America continued in the occupation of the aborigines, the order of nature was apparently but little disturbed. The buffalo and deer, the wild fowl and turkeys, furnished abundant food to the savages without serious encroachment upon the fertility of nature. In savage life there appears to be no wanton or unnecessary destruction of the natural means of support. It was reserved for the civilized white man to carry on a wanton war against the bounty of nature, and to kill and destroy, without thought or study of those imperative laws under which nature holds in trust the food supply of man. From the first settlement of the country, the process of eradicating and annihilating the useful animals, birds and fishes natural to the country has been carried on with an energy and success but too characteristic of the Saxon race. Large tracts of land have been entirely depopulated of their animals and useful birds. The buffalo on his native plains has become an object of rare curiosity. Deer are limited to the remoter mountain ranges or extensive tracts of barren woods. The wild fowl, which swarmed in New England during the first settlement of the country, and for a long time afterwards, have almost disappeared. The last wild turkey was killed in Massachusetts nearly half a century ago. There is probably no sportsman living who has killed a grouse on Martha's Vineyard, the last refuge in the northeast of that most valuable bird. Plover still migrate, though in diminished numbers, from their breeding places in the far North to their winter home in the South, but they carefully avoid the northeastern coasts. No one in this generation has seen a wild swan alighting on the waters of Massachusetts. They once abounded there. Even the wild geese find no resting place here, but are expelled as if they were tramps and vagabonds.

Man Destroys, Nature Economizes.

Mr. Marsh, in his most interesting and instructive book, "Man and Nature," shows how spendthrift man has, by his ignorance and neglect of the laws of nature, ruined for the purposes of habitation large portions of his fair inheritance on the surface of the earth. The shores of the Mediterranean exhibit today, in many places, desolation not due to political or national decay, but to man's reckless abuse and wanton destructiveness. Although this may be excused to some extent by the ignorance of former days—for study of the relations of nature to man is of very recent date—there can be no excuse, in our more enlightened time, when knowledge of all kinds is so accessible, for not only abusing inanimate nature, but for expelling from the earth so many of our living fellow inhabitants. We are not only forwarned by our present knowledge, but we have reason to believe that earnest study would in a few years reveal to us many of the now secret and hidden operations of nature. We know, for example, little of the mysterious arrangements by which nature disposes, after their brief life, of the countless birds and animals born into the world. Many millions are born annually; as many millions must annually die. We see the smaller birds occasionally seized and devoured by the birds of prey; we know that the fox, the weasel, the wildcat, and the mink live largely on birds; but this does not account for their mortality. How rarely we come across dead birds or animals in our walks through the woods and fields! Nature is the most decorous of sextons. She lays her countless dead to rest in the bosom of the earth noiselessly, and with no trace to offend our senses or our feelings. Perpetual birth, youth and renovation are her monuments in her everlasting cemetery. Man lives surrounded by her living forms; she gives him little or no hint of the mortality of her children. It is from his own lot and imperfect dealings with his own decay that man derives his sad lessons and painful associations with mortality.

As we rarely know individuals in animal or bird life, these races seem in nature's arrangement immortal. The spring brings them to us with the certainty and freshness of new leaves and flowers. We see the leaves and flowers decay; but, as a general rule, we have little consciousness and scarcely any knowledge of the death and decay of animated nature. Could we know this, we could greatly enlarge our power of dealing with an animal race, with every probability of increasing their number and the average duration of their lives.—*William Minot, in International Review for August*, 1880.

FLOUR MANUFACTURE.

Until recently, says the editor of the science department in the *Californian*, it was believed that the only thing to be sought for in the production of a good article of flour was a more less fine disintegration of the kernels of wheat. As long as millers held to the theory that "grinding" was all that was required, a large percentage of the flour had its nutritive powers greatly reduced by being ground to an impalpable dust. Science, by aid of the microscope, has shown that no really good bread can be made from flour in which any large portion of the starch globules have been thus broken down. The rising of bread is due to the starch globules which remain whole, while the dust from the disintegrated ones, by souring, impairs the lightness and sweetness of the loaf. It is but recently that these facts have been made known to millers, and since that time they have been discarding their old theories and machinery and devising improvements with the view to separating the starch globules rather than pulverizing them. Another important advance in this industry consists in an improvement in belting machines. Until recently the bran was separated from the flour by a powerful air-blast, which blows off the light particles of bran. Considerable power is required for this process, and, although it is carried on in a closed room, there is not only a great waste of the finer particles of flour, but the impalpable dust penetrates every part of the mill, and often gives rise to destructive explosions. By a recent invention electricity is made to take the place of the air-blast. Just over the wire bolting cloth, which has a rapid reciprocal motion, a number of hard-rubber cylinders are kept slowly revolving and rubbing against strips of sheepskin, by which a large amount of frictional electricity is evolved. Then, as the middlings are sieved by the reciprocal motion, the lighter bran comes to the top, whence, instead of being blown away by an air-blast, it is attracted to the electrically-charged cylinders, as light substances are attracted to a piece of paper or a stick of sealing wax, which has been smartly rubbed. The removal of the bran from the rollers and its deposit on one side are readily effected, while the flour is carried in another direction. The separation is thus made complete, with very little loss or dust. Still another device has also been introduced to remove from the wheat, before being ground, small pieces of iron which, despite the utmost care, will find its way into the grain, working great injury to mill machinery. This trouble is now remedied by the use of a series of magnets, directly under which all the grain is made to pass. These magnets readily capture all the stray pieces of iron from the wire bands used in binding; and they have also revealed the singular fact, that, of the scraps of iron and steel which find their way into the grain, fully one-third are something beside the binding wire. They are of larger proportions, of varying character, and much more hurtful to the machinery than the wire. Thus it is that science is constantly coming to our aid in all our varied industries, lightening the labor of the workman, decreasing the cost of products, and in every way improving all the various processes which are involved in the improved and constantly advancing civilization of the age.

BE CAREFUL WITH CARBOLIC ACID.

Poison by wholesale is being supplied to everybody who will purchase it, in the form of a strong solution of the poisonous substance known as carbolic acid. Two cases of poisoning from this solution have occurred in Philadelphia—the first, that of a lady, who was using it for the purpose of destroying insects. Being unaware of any danger, she had a cloth in her hand some time, which was saturated with the carbolic acid, and a sufficient quantity of the poison was absorbed through the pores of her hands, and by that means entered the circulation, to produce a dangerous and alarming effect, from which she fortunately recovered. The second case is a sad one, which caused the death of a little boy three years old. The father had purchased a half-pint bottle of this preparation for the purpose of preventing moths from

destroying his carpets and other woolen goods during the absence of his family from the city, and the poison which destroyed the child's life was placed on the floor under the sofa in the parlor, while the house was unoccupied. The little boy got hold of it, and drank some of it with fatal effect.—*Philadelphia Ledger.*

THE PENNSYLVANIA CENSUS.

The returns from the counties of Pennsylvania are by no means complete, but a few have been received which will show the general increase during the last decade. Some surprising results are shown, notably in Venango and Bucks, the one going backward and the other one practically standing still. The total population of the State is now estimated at 4,250,000.

	1870.	1880.	Per Cent.
Philadelphia,	674 022	847,542	24.7
Lancaster,	121,340	1 9,5 4	15.5
Cumberland,	43,912	45,124	3.0
Northampton,	61,432	70,314	14.5
Lehigh,	56,796	66,220	17.5
Bucks,	64,336	64,388	
Perry,	25,447	27,420	.08
Dauphin,	60,740	78,412	29.
Chester,	77,805	86,606	10.
Cambria,	36,569	47,667	31.
Venango,	47,925	43,711	Loss.
Fayette,	43,284	49,940	15.5
Columbia,	28,766	32,402	16.
Westmoreland,	58,720	68,571	17.

In 1870 Luzerne county, which then embraced the territory of Luzerne and Lackawanna counties, had a population of 160,000. Luzerne county now returns a population of 120,000, but as no report has been given from Lackawanna the percentage of increase in the territory cannot be made.

RAISING QUAILS IN A TAME STATE.

Henry Benbrook, a dealer in game, residing in Raritan, New Jersey, has succeeded in raising young quails, an operation that has been tried in the United States repeatedly, but which hitherto has proved futile. Four years ago he captured two Morris county quails, the female being lowland, and the male highland. The female laid 24 eggs the first year, but could not be induced to set. The second year Mr. Benbrook was in Canada, and nothing was done with the birds. The third year the female made its nest, laid 12 eggs, and after setting 10 days died. The male bird then sat on the eggs, and six quails were hatched. They were all raised by Benbrook, and are still living. These young quails began laying on May 21 last, and up to July 31 have laid 108 eggs, but they show no signs of setting as yet. Some of the eggs were placed under a bantam chicken and six of them hatched, and the quails are alive today. This experiment of raising young quails has been undertaken by game societies all over the world for years, but this is the first time any one has succeeded, so far as the record shows.

BEET ROOT CULTURE FOR SUGAR.

DELAWARE BEET SUGAR CO., WILMINGTON, June 28, 1880.—Hon. Charles Gibbons—Dear Sir: I have your favor of the 20th, and will take up your questions in their order.

The soil we find best suited in Delaware is that light sandy loam incident to the neighborhood of Odessa and Middletown, especially the former, and further down the State, around Camden and Wyoming. Our best beets last year were raised at Odessa, by E. C. Fenimore, testing over 13 per cent. of sugar, with an actual yield of 18 tons of 2,240 pounds to the acre. This paid him handsomely, and he and his father have this year about 50 acres under contract with us. About Wyoming the average test of sugar was 11 10-100 per cent., in 90 separate contracts; soil about 40 per cent. clay is also good for sugar, but much more expensive to work.

To your second would say that the average per acre for the whole State was a shade above ten tons, but we fully expect an average this year of twelve tons, possibly fifteen, although the last is hardly probable. We expect this better result this season, as we have made a better selection of growers, and they are placing their rows closer together (this year 20 inches apart, last year nearly 40 inches,) which will not only grow more tons but more sugar. In Germany the average yield is twenty tons per acre, which we hope to realize here in three or four years, if we go ahead. As to the price we pay, I enclose you a pamphlet by this mail, showing we pay as per the per cent. of sugar in them. This is a departure of our own from the usual way of doing it, but we feel well assured it is the only true way to get sugar in the beet, which, of course, is what we most desire, as we can as readily extract the sugar from 13 per cent. beets as from 8 per cent., *at no higher cost*, and at much more profit, as it is a well-known fact that the higher the per cent. of sugar the smaller the per cent. of impurities, and from the additional fact that if 8 per cent. beets have 30 per cent. impurities, those impurities neutralize an equivalent of sugar immediately adjoining them, so that we would only realize but 5 per cent. of sugar practically, hence beets small in size (say 2 pounds,) but rich in rich sugar, are wanted.

Fourth. Under present information it would be an impracticable thing for the farmer to press the juice and send it to factory, as the beet juice is one of the most delicate known, and has to be treated as soon as made with lime and carbonic acid, and, in fact, the operation must be continuous clear to a concentration of the juice until it shows at least 25 per cent. of sugar in the juice, and this is almost the finishing point. The only thing the farmers can do is to put up a complete establishment, except the finishing pan (where it is boiled to the crystallizing point) and centrifugal, and this is hardly a practicable thing, as it requires a large outlay for machinery and contrivances. Besides, our exceedingly low rates of freight on both beets and the refuse pulp enable us to work to advantage in our present location. If we should be successful this season we have the ultimate idea of extending down the State, so that we can to better advantage sell our pulp, but this is in the dim future as yet. This item of pulp is a large one, as we make about 43 per cent. of the original weight of the beet in pulp. For instance, a 200-ton factory will require 200 tons beets every 24 hours, or say 25,000 tons for the season, which would make about 11,000 tons pulp to be disposed of for cattle food. This is a large undertaking, but from the fact that we last year sold all our pulp, with a strong demand at the end of the season which we could not fill, and with the additional fact that we already have orders for about 2,000 tons for this year, when we will not commence to work it until September 15th, makes us feel tolerably safe even with a large production. This is one serious drawback under which the Maine Beet Sugar Company, located at Portland, is working, as in their first season last year they had about 4,000 tons pulp, and disposed of but about 400 tons, and had to move the balance at great expense. As far as we can see, the success of the manufacturing of sugar from the beet is merely dependent on the success of the agricultural part, and our farmers are so loth to attempt a new crop that we feel we must go into growing them ourselves; and if we do this, and go through the experimental years of growing them, we shall probably go largely into it and grow all we need. I have written this hastily, but trust I have made a point clear to you.—*A. D. Warner in Philadelphia Ledger.*

THE ENGLISH SPARROW.

As the habits and value of the English sparrow are now being investigated in various parts of the country, I submit the results of my own observations, made during the last three or four years, or since the bird became abundant in this country. The charge frequently made that the English sparrow drives our native birds from their accustomed haunts does not apply to this vicinity. The sparrows are very numerous, are noisy and sometimes aggressive in their habits, but appear to quarrel more among themselves than with other species of birds. I have not noticed any superior combative power which would enable them to do that which they are charged with doing. They are with us during the year—about our grounds and dwellings in great numbers. They are the companions of the song-sparrow, snow-bird, woodpecker, chickadee, creeper, nuthatch, etc. There is no conflict or dispute among them. During the inclement weather of winter I feed the birds frequently, sometimes daily, and have watched their movements with great interest. I have not seen a dispute in their efforts to obtain the coveted food. The woodpeckers and chickadees gathered bits of meat and the seeds which I scattered.

Nor have I noticed any considerable controversy at the nesting season. Bluebirds are the first to arrive, and sometimes find their former nesting-places occupied by sparrows, but no disturbance occurs, the bluebirds finding other places for their nests. I have several times noticed, however, that the bluebirds are masters of the situation when a struggle takes place for an empty box. At this writing bluebirds, sparrows, orioles, and many other species have their nests on my grounds, and equally so on the grounds of others in our neighborhood. I have no doubt there are fifty birds' nests within a short distance of my dwelling. Robins, blackbirds, orioles, warblers, finches, and fly-catchers of many kinds are all about us, very much more numerous than they were in our boyhood.

All birds of species which love the shade of the woodlands are, of course, undisturbed by sparrows, which seek open spaces near dwellings, not the forests. Nor will it be claimed that larger birds, such as the robin, suffer from the presence of the sparrows. With us the barn swallow is among the most peaceful and unobtrusive of birds, and yet it does not seem to be in any great fear of the sparrows, as the following incident will show: A pair of swallows commenced building a nest under a shed on my premises, but a sparrow was soon seen sitting on the side of the half-finished structure. Directly the swallows commenced building another nest within a few feet of the first, and no further disturbance took place. The nest was finished and occupied by the swallows. Sparrows have not driven our native birds away, neither have they given cause for any serious complaint on account of destroying our grain, as they seem to have done in some other places. I think, in this particular, it would be well for people to observe carefully for themselves. In winter, indeed at all seasons, sparrows delight to feed on half-digested grains thrown from stables, or scattered elsewhere, but in spring and summer I have seen them carrying animal food to their broods. This they do persistently and in quantities, the supply consisting largely of insects, larvæ, worms, etc. I have seen them catch insects on the wing as do the fly-catchers.

I have not observed that they eat berries, grapes or other small fruits, but have seen them picking the soft grains of sweet corn. If their food were scanty or unsuitable it is probable that they would feed more on the valuable grains. The birds which do most damage to farmers in this vicinity are blackbirds, robins, catbirds and a few other species, which feed on cherries, blackberries, grapes and similar fruits. When the fruits are ripe, the trees and bushes swarm with these birds, but we hear of no prejudice against them on that account, while the sparrows are freely condemned for like offences.—*Popular Science Monthly.*

AGRICULTURAL PRODUCTS—EASTERN STATES OF AMERICA.

Our own English pastures are fitted to give splendid results in the production of butter if

our farmers would use the inventions of other lands to obtain their products with uniformity and regularity. Even our old reputation for cattle-breeding does not stand without challenge on the other side of the Atlantic. Last autumn I visited a farm in Vermont where I saw among the cattle, dukes and duchesses of genuine pedigree which would have rejoiced the hearts of our best breeders. There has been a widespread distribution of excellent Jerseys, and other good breeds, all through the States, and fresh grass butter, during the whole winter, can be had in New York from the Mississippi, Tennessee and other regions. While we have been contented in recent years to depend more and more on the lean stock of Ireland, so as to produce high-priced beef, and neglected the breeding of cattle, the farmers on the other side of the Atlantic are continually trying to improve their breeds. In the future the competition in beef will be great, for transport is improving, and the cattle on the prairie lands are increasing so fast that their surplus must be exported, even at small profits. Sheep are now fed over the cotton lands, on the seed, after the expression of the oil, and are thus reared with much economy, for their manure greatly improves the crop, while their wool being added to the profits enables the mutton to be exported at little cost. Already all the products of the hog are competing heavily with our home supply. On visiting one of those factories at Chicago, where thousands are daily slaughtered and converted into transportable products, the owner remarked to me that they were a mere concentration, or, as he expressed it, "incarnation," of Indian corn, and, therefore, the cheapest way of getting that bulky corn transported to Europe. It is true that the price of meat to the consumer of the United Kingdom has kept up well during the past years, but how long such prices will continue is a question for experience to determine. I may be wrong, but I think the future supply of animal food from the West will ultimately keep down the prices of meat as well as of corn. In regard to oats and barley, we have little to fear, and we ought to hold our own against dairy produce when the pressure of competition teaches the farmer that he must improve in quality as well as increase in quantity. My views are of no more value than those of any other intelligent observer, for, though I have paid considerable attention to the science of agriculture, I have never been engaged in its practical operations. Still, as a chemist, I am much struck with some facts in regard to the agriculture of this country, to which I can now make only a passing allusion. The production of human food, especially in Ireland, is decreasing very rapidly. We have seen that the effect of competition on the New England States has been to increase the production of the soil for various kinds of crops. But this notably is not the case in Ireland, especially in regard to the crop of potatoes. Previous to 1845, six or seven tons of potatoes per acre were constantly raised upon Irish soil. This produce dropped to 5.6 tons between 1847 and 1851; to 5.3 between 1852 and 1856, and fell as low as 3.1 tons between 1869 and 1878. In other parts of the United Kingdom there has been little falling off in the produce of this crop; and the weakened state of the tuber, to which the decline is commonly ascribed, as a result of the potato disease, has no real foundation. It is a canon in agriculture that the best manure for any crop is that of the animal which fed on that crop, because all its ingredients are in exact proportion to the wants of the plant. It is in this way that the cotton lands of America are so benefited by the sheep which feed upon the pressed seeds. In Ireland, however, a great change has taken place in the habits of the population. Formerly, the potato was a staple article of food; the people lived upon the farms and restored to the land what was extracted in the growth of potatoes, but when many emigrated to America, and when the residue changed so materially their mode of diet, the manurial balance of production and restoration was much changed, and the immense falling off of production has been the consequence. It can only be by due restoration of the abstracted ingredients of the soil through artificial manure that the land of Ireland can regain its old fertility. Cereals during a lengthened period have been lessening, and cattle increasing, in Ireland. If the balance of nutritive equivalent be struck between them, the startling result follows that Ireland could have fed 2,520,000 more people in 1856-7 than it could in 1878. During a large portion of that time England and Scotland were increasing in food-producing power, but latterly they have been decreasing also, though not nearly to the extent of Ireland. I state this important fact because it clearly shows that our agriculture is already changing its condition. The economical aspect of the question is another matter. It might pay a farmer to grow nothing but lavender, and the land might be fulfilling its functions without growing food at all if it produced profit to invest in food from other lands. But changes are going on, and rapidly, in the production of food in this country, and it is a problem for all of us to consider attentively. As a very small contribution to it, I have given the impressions produced upon my own mind during a pleasant residence of a few months in the New England States last autumn.—*Lyon Playfair, in Fraser's Magazine.*

ANTIQUITY OF WHEAT.

Wheat has been in use for bread since the earliest antiquity. Its origin cannot be authentically traced, nor are the millions who use it much concerned on that head, as long as they have plenty of the flour which the nourishing article produces. It was introduced into this country, according to a writer in the *American Miller*, in 1539. As to its cultivation this may be true, but there is good reason to believe that it was brought over with Columbus in one of his voyages at an earlier period. Its discovery is attributed to have been by chance on this continent, the story of which, as told by *The Miller*, runs in this way: A slave of Cortez found a few grains of wheat in a parcel of rice, and showed them to his master, who ordered them to be planted. The result showed that wheat would thrive well on Mexican soil, and to-day one of the finest wheat valleys in the world is found near the Mexican capital. From Mexico the cereal found its way to Peru. Marie D'Escobar, wife of Don Diego de Chauves, carried a few grains to Lima, which were planted, the entire product being used for several successive crops. At Quito, Ecuador, a monk of the order of St. Francis, by name Jodosi Bixi, introduced the new cereal; and it is said that the jar which contained the seed is still preserved by the monks of Quito. Wheat was introduced into the present limit of the United States contemporaneously with the settlement of the country by the English and Dutch.

NORMAL LENGTH OF LIFE.

The late Professor Faraday held that the natural age of man is one hundred years. The duration of life he believed to be measured by the time of growth. In the camel this takes eight, in the horse five, in the lion four, in the dog two, in the rabbit one year. The natural termination is five removes from these several points. Man, being twenty years in growing, lives five times twenty years—that is, one hundred; the camel is eight years in growing, and lives forty years; and so with other animals. The man who does not die of sickness lives everywhere from eighty to one hundred years. The professor divided life into equal halves—growth and decline—and these into infancy, youth, virility and age. Infancy extends to the twentieth year, youth to the fiftieth, because it is in this period the tissues become firm; virility from fifty to seventy-five, during which the organism remans complete; and at seventy-five old age commences, to last as the diminution of reserved forces is hastened or retarded.

A MOUNTAIN FRUIT FARM.

I am spending a few weeks in the beautiful valley of the Juniata, and making frequent rides over the hills and among the old-fashioned Dutch farmers of this (Perry) and the adjoining county of Juniata; solid, wealthy, unprogressive as they were an hundred years ago. Many of them still live in their hewed log-houses, not half as large, handsome, airy or comfortable as their barns, which I have named "agricultural cottages."

Nearly all the orchards upon these old farms are of the most unimproved sorts of apples and seedling peaches of the late ripening kinds. Only now and then a man seems to have thought of trying experiments in growing better sorts, or more than was wanted for family use. The people are farmers in strictest sense. Gardening and fruit culture are occult sciences. But a new light is dawning in this valley; an experiment is in progress which proves that these rough mountain sides are nature's chosen spots for orchards; that here the cultivators of peaches in Jersey, Delaware and Maryland may renew their work when it fails in those States, for here is an abundance of cheap land, of little value for grain cultivation, yet excellent for orchards. This has been lately proved in several instances and different localities, but most extensively on the south bank of the Juniata river, in Juniata county, about one hundred and forty-four miles from Philadelphia, near a station called Thompsontown. There, if the traveler going west on the Pennsylvania railway will look out south and up the steep hillside, he will see the main part of an orchard of 15,500 peach trees, and 9,000 Siberian crab apple trees. And if he should stop and walk or ride through the orchard, as I did, and find one dead or discarded tree, he will find more than I could; although I was told by Mr. Taylor, the foreman, that he did lose one tree in the section where we were then.

"And how many trees are in this section?"

"Six thousand."

If a like result can be found anywhere else on earth I should like to be informed, that I might make another pilgrimage of a thousand miles to see it, as I have seen this, the most healthy, thrifty, most promising young orchard I have ever seen in all my extensive journeys through the United States and Canada. Yet most of the land is unfit for any other cultivation, and a considerable portion of the ground has never been ploughed, because so steep and so full of stones and roots. In this respect it reminded me of some of the vineyards of Pleasant Valley, N. Y., it being often difficult to get dirt enough to make a good loose bed for the roots.

There is another remarkable feature about this extensive orchard which is indicative of the character of the owner. Notwithstanding all the natural obstacles, every tree has been so exactly set in right angled lines that the transverse rows appear as straight as those on the horizontal and vertical lines. Thus, when furrows can be ploughed at all, they can be run six ways among the trees, which are set 15 feet apart for peaches and quinces and 20 feet for apples. To accomplish this remarkable result of straight rows and exact distances required many a hard day's work removing stumps and stones and filling up holes. Now the beauty of the work fully repays the extra cost. It is, however, costly work to prepare the steep hillsides by hand labor, for the largest part of the timber trees had been cut off years ago, leaving a thicket of brushwood. An attempt is being made to utilize the brush by cutting it in a machine like a straw cutter and sending the product to market for kindling coal fires. As the roots in the ground continue to send up sprouts, which must be repeatedly mowed, the proprietor wants to know how to get them out without too much expense of hand labor.

Who can tell him the best way? Can he fix a stout capstan at suitable points at the bottom of the slope and carry a wire rope and grappling iron up the hill to the roots and pull them out by mule or ox-power? I have so advised.

The first section of peach trees was planted in 1875, and first full crop was being gathered to-day, the varieties—Crawford's Early (white,) of fair size and good flavor; and Beatrice, a small, red blush, early peach, very delicious. The Philadelphia market being overstocked, it does not pay to ship; so a drying house has been hastily erected, and a hot-air dryer, capable of passing sixty bushels a day, put in operation. The peaches are peeled by hand machines of a recently improved pattern, which do good work rapidly. By drying the fruit the seeds are saved for the nursery, for there are many acres of orchards yet to be planted. The trees which come into bearing next year will produce fruit from early in July till late frost. It is probable that all of the improved methods of putting up the ripe fruit will be adopted, instead of marketing it fresh; owing to the long transportation and risk. There are 444 acres in the tract, and with the exception of a narrow strip along the river, part of which is already occupied by wagon road and railway, the whole is the northern slope of a high hill, and is undoubtedly a most favorable location for an orchard; and fortunately it is owned by a gentleman who is not only able but willing to devote the immense energy and money necessary to prove to a thousand other owners of similar mountain land that it is not worthless for cultivation, as has been often declared, so that it has often sold only for its value for mining or timber.

Now I think I hear some impatient person who has read thus far about the operations of the owner of this mammoth enterprise crying out, "Who is he? You haven't told us his name!" I know it; and it required considerable argument to get his consent that I might give it; for he did not wish it to appear as though he were boasting of what he had done, and he feared an avalanche of letters if his name was given. But to force so good an example, I persuaded him to allow me to give his name, and then no one will doubt what I have said, who happens to remember during the past half century a busy New York and Philadelphia business man, who usually writes his name "H. Bradford," who was born upon the banks of the Connecticut river, ten miles below Middletown. If you are curious to know when, you will find "Hezekiah Bradford" upon the baptismal regisler somewhere in that vicinity. I shall not tell exactly when or where the entry was made. But I will say that many men of his age prefer rest rather than such untiring labor as he puts into this enterprise, while at the same time he conducts his city business. Let us all wish eminent success to the Bradford fruit farm, and that the success of this experiment may be the incentive to many men to improve the waste lands of Pennsylvania mountain counties.

A word as to the incentive of Mr. Bradford's great work. A few years ago this tract came into his hands upon the false representation that it contained valuable veins of iron ore. He bought it unseen. When seen it was found to yield no workable ore, and only a small tract of farm land, with a few common farm buildings. The question now was: "What shall I do with it?" That question has been answered. Mr. Bradford must take rank as a public benefactor.—*New York Tribune.*

Angora Goats.

An association has been incorporated in Virginia, with a capital of $2,000,000, for the purpose of raising Angora goats. According to its charter the association is permitted to hold in fee, 200,000 acres of land, and to issue bonds, but not without the consent of nine-tenths of all the stockholders. 20,000 ewe goats will be brought on from California.

Our Local Organizations.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The Lancaster County Agricultural and Horticultural Society met statedly in their rooms over the City Hall at 2 o'clock on Monday afternoon, August 2d.

The following members and visitors were present: Calvin Cooper, Bird-in-Hand; H. M. Engle, Marietta; Henry S. Kurtz, Mount Joy; John C. Linville, Gap; H. G. Rush, West Willow; James Wood, Little Britain; Henry Stein, city; Johnson Miller, Warwick; J. M. Johnston, city; W. W. Griest, city; S. M. King, city; Joseph F. Witmer, Paradise; John Huber, Lititz; Elias Hershey, Leaman Place; W. H. Brosius, Drumore; Israel Landis, Manheim; C. L. Hunsecker, Manheim township; John H. Landis, Manor; Ephraim Hoover, Manheim; Peter S. Reist, Lititz; Peter Hershey, city.

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

The Secretary, Mr. Kendig, being absent, Mr. Calvin Cooper was elected Secretary pro. tem.

Crop Reports.

Mr. Engle—Corn in fine condition, and with another rain would be a very heavy yield; potato crop short; young clover as a general thing is a failure; fruit, fair to good—apples possibly above the average, pears fair, peaches good; tobacco in his district was promising, some fields being as fine as he had ever seen, and saw no reason for croaking on the part of the farmers. Mr. Engle reported the rainfall for the month of July as being 3⅝ inches.

Mr. Kurtz—Corn looks remarkably well, yet without rain it will not husk as well as it looks just now; clover and timothy a complete failure; tobacco very irregular; seeding plowing has commenced, but the ground is too dry.

Johnson Miller—The crops in Warwick are average ones. Tobacco not equal to last year's crop; apples very fine; grapes more plentiful.

For Drumore Mr. Brosius reports the corn crop as promising; grass had been somewhat killed before harvest, but was now doing well; tobacco at an average of other years.

J. C. Linville, from Salisbury, reported the potato crop as rather light, but in quality the best they ever had; winter apples are too forward; tobacco looked poor, the leaves curling up; considerable threshing has been done, but has not heard much of the yield. The Clawson and Mediterranean had done better than the Foltz variety, which had gone back on them, the first time since they had begun sowing it, ten or eleven years ago; many of the farmers resowed clover and it had grown nicely, but was now burning up; too young to stand the drought.

H. G. Rush reported the grass in his section as very poor, but much depends on the future weather; potatoes, since the cultivation of tobacco, have been neglected and consequently are poor; the ground is mostly plowed, prepared for seeding.

For Paradise, President Witmer reported the tobacco as far ahead of last year; two-thirds of his grass was better set than ever; he had taken seven loads off of five acres; potatoes short.

Mr. Linville stated that in a drive of eighteen miles in Chester county he had noticed a great many fields of tobacco, in fact on almost every farm, and all looked well.

Referred Questions.

The question, "What is the best mode of planting trees; should they be watered and in what way?" had been referred at the last meeting to Mr. Calvin Cooper. He had not given it any thought, but would give his prevailing method. In the first place the tree should not be of too large a growth; would say "no" to the watering; if the ground is too wet don't plant. The soil should be thoroughly pulverized; the rootlets straightened out horizontally, the ends cut with a sharp knife, slanting the cut from the under side. After having put the tree in the ground stamp thoroughly, to hold the tree in place, as every wind which shakes the tree breaks the little rootlets so that they cannot take hold. The top of the tree should also be carefully trimmed and cut back, so that it would balance well. Coal ashes about the foot of trees was very good.

Mr. Engle when planting trees cut every branch from the main stem. The roots should be cut with a sharp knife, as with a digging iron the root is bruised and cannot throw out the necessary fibres. Puddling the roots before planting was very good.

Peter S. Reist always used water in planting trees, sometimes a bucketful or when water is scarce only half a bucketful. Very few trees died for him.

Johnson Miller planted his trees the same day they were brought from the nursery. He used a little water.

Essays.

Dr. C. A. Greene read an essay on "Night Soil," as follows:

GENTLEMEN: At the regular meeting in June last I was requested to write an essay on night soil. This compost is the poorest variety of manure; it contains the ammonias and phosphates, but in variable quantities and only sparingly. Yet they should all be saved and utilized. As all good farmers know that there is a constant drain from their soils, so there must be a constant replenishment, or the crops will grow smaller. The careful farmer will save all substances of whatever character that while decaying and undergoing decomposition will furnish plant food to raise wheat, corn, beans and other crops, such as decaying weeds, sawdust, old bones, hats, ashes, either coal or wood, old carpets, mats and straw, and place them with his night soil in a heap, in a clayey, hollow piece of ground, where their virtues may be retained; under a shed in the first place, for if diluted with rain water they will escape into surrounding places. All farmers should make a box of plank and place it under their privies, on rollers, and occasionally throw on to the night soil some muck or mellow earth, and when the box is full roll it out and convey the contents into your compost heap, to be mixed with other manures. In this way you will never have any unpleasant smell. The privy should be high enough to allow of this box being removed easily and readily from the rear portion of the building. There should be three common wooden rollers about five inches in diameter and as long as the box.

When the doctor had finished reading the above essay, he asked and obtained permission to read the following paper on

Insects and Congress.

There are few subjects which have more widely received the attention of farmers than insects destructive to vegetation. And the majority of farmers in this country have come to the conclusion that they cannot successfully cope with them. This is an unfortunate fact, for millions of dollars worth of fruit, grains and vegetables are yearly destroyed.

No systematic attempt will now be made to exterminate or decidedly lessen the innumerable throng until Congress takes hold of the subject with ungloved hands. There is no doubt that the combined intelligence of man is superior to that of the curculio, army worm, grasshopper, or borer. But where the enemy is in such immense quantities and varieties, and extends over so vast a space of territory, they cannot be annihilated only by combined, systematic, concerted action. For a subject of such vast importance men of decided talent should be brought together in sufficient numbers to do justice to the subject. A paltry appropriation of $15,000 to Mr. Riley and his few assistants, is like two seamen undertaking to care for a full-rigged ship in a gale.

Congressmen should at, once agitate the matter, and should make appropriations large enough to employ all the talent necessary to bring about favorable results. From my knowledge of destructive insects, and from the few hundred experiments I have made in the last forty years, I am fully convinced that no insect ever lived that cannot be readily decimated by proper application of destructives. There are scores of eminent entomologists in this country whose services could be retained under the commission already appointed by the government, and the results of their combined experiments could be published in book form by the government, and the information would be gladly accepted by the people, and insects could be greatly depopulated, in the same persistent manner that bears, wolves and foxes have been decimated. But the government must act magnanimously—on a large scale. All such esteemed and educated entomologists like our distinguished townsman, Dr. S. S. Rathvon, Herman Strecher, Esq., of Reading, and others of the same class of experts, should be attached to the commission of Prof. Riley.

Resolved, That we have learned with pleasure that Congress has at last taken some measures for the destruction of insect pests, and that we urge the necessity of such appropriations as will employ the best talent the country can produce.

Johnson Miller differed from the resolution. Congress taking hold would be of little good. It would be creating more officers, and they were worse than the bugs. Let the farmers fight the insects; they could do more good than the Government.

H. M. Engle favored the resolution. We need scientific men, who will tell us the habits of the insects and how to destroy them. Dr. Rathvon had given warning of the coming of the Colorado beetle and we were prepared for it when it came, and consequently it did very little damage. We are now losing millions by the ravages of insects. We might hand-pick them, yet if our neighbors did not do the same thing it would have no effect. Mr. Engle then moved the adoption of the resolution.

After considerable discussion, pro and con, the resolution was unanimously adopted.

John H. Landis offered the following resolution:

Resolved, That the Lancaster County Agricultural and Horticultural Society invites the Hon. Galusha A. Grow to deliver an address at the annual fair to be held next month.

Mr. Landis prefaced the offering of his resolution by saying that he had a conversation with Mr. Grow

and he believed that he could be induced to come.

The resolution was unanimously adopted, and Mr. Landis was instructed to see Mr. Grow and try to obtain his services on the second day of the fair.

The president appointed Messrs. W. H. Brosius, Johnson Miller and Ephraim Hoover to sample the fruit on exhibition, who, after inspection, reported as follows:

Six varieties pears by H. M. Engle, Rostiser, very fine and good; Osband's Summer, splendid in appearance as well as in quality; Duchesse du Beurre, very good, tartish pear; Kirtland, very sappy and of a most delicious flavor, quality good; Annes De Ete, fair.

Two varieties apples by D. M. Mayer, Early Strawberry, very excellent.

Apple for a name—small, sweet and fair quality.

Referred Questions.

"Ought farmers to be exempt from taxation to the amount of their indebtedness?" Referred to Peter Hershey.

"How can the paper moth be most effectively exterminated?" To Dr. S. S. Rathvon.

"Has the Grange movement been successful?" To Johnson Miller.

"Do old maids or young maidens make the best farmer's wives?" To M. D. Kendig.

Adjourned.

POULTRY ASSOCIATION.

The Lancaster Poultry Association met in their rooms Monday morning, August 2d, S. N. Warfel presiding. This was the first meeting in two months, the last meeting having been postponed on account of the 4th of July.

Members Present.

S. N. Warfel, President, E. C. Brackbill and J. M. Hagen, Strasburg; Wm. Schoenberger, J. B. Lichty, J. B. Long, Chas. Lippold, Chas. E. Long, J. M. Johnston, S. M. King, Frank Griest and H. W. Stein, city; T. T. Evans, Lititz; J. M. Bruckart, Salunga; J. M. Malone, Brickerville; James Wood, Little Britain, and Joseph T. Witmer, Paradise.

The Executive Committee held a meeting before the society met, and discussed at great length the time of holding the next chicken show.

No action was arrived at and the matter was referred to the society.

Treasurer's Report.

Under new business the report of the Treasurer, T. Y. Evans, Lititz, came up. From it we glean that there was in the Treasurer's hands on July 1 of this year, $158.79.

New Member.

On motion, J. M. Malone, of Brickerville, was unanimously elected a member of the association.

The Next Poultry Show.

The matter of the time to hold the show referred to the meeting by the Executive Committee was called up by a motion of Wm. Schoenberger, seconded by Frank Griest, that the show be held on the same days of the weeks on which it was held last year, (that is from Friday of one to Wednesday of the next week.)

The discussion on this showed that the contending point lay in the holding of the show over Sunday. Mr. T. T. Evans, had himself no scruples against holding it over that day, but he was afraid the society would lose the co-operation of local fanciers, Rev. D. C. Tobias (Lititz) he knew was opposed to it.

Mr. Evans was sustained by the President, to whom much complaint had been made, both in the rooms and out. He did not know whether it was religious scruples or not, but strong objections to keeping the birds over Sunday in the rooms had been made.

Charles E. Long favored the old days, as Monday and Saturday were the best days financially. With those days the last show was was a success, and why run a risk now?

Chickens were taken care of better in the rooms than they would be on the cars; coming from a distance this would be the case if the show was held on Tuesday as suggested, was, beside the financial view, the argument of J. B. Lichty.

J. M. Johnston amended the above motion by substituting the days from Tuesday noon to Friday evening of the same week. The amendment was seconded and lost by a vote of 4 to 7. The original motion was now carried.

The Date of Holding It.

The days having been settled, it was moved by J. B. Long that the show be held from Friday, January 7, to Wednesday, the 12th. This was amended by J. B. Lichty, who proposed the dates from Friday, the 14th, to the 19th of January. The amendment was carried. Thus, to sum up, the show which gave such satisfaction last year will be repeated from Friday, the 14th, to Wednesday, the 19th of January, 1881.

After a discussion as to the time of judging the birds, the understanding was reached that that work should be done in the first two days.

Adjourned.

THE BEEKEEPERS' ASSOCIATION.

The quarterly meeting of the Beekeepers' Society was held Monday afternoon, August 9th, in the parlor of the Black Horse hotel.

Members Present.

The following members were present: J. F. Hershey, Mount Joy; I. G. Martin, Earl; Elias Hershey, Paradise; C. A. Gast, city; F. R. Diffenderffer, city; John H. Mellinger, Strasburg; John Eitermiller, Strasburg; A. B. Herr, Mountville; L. Fleckenstein, Highville; J. B. Eshleman, Ephrata; Thomas Thurlow, city; Daniel Hess, Strasburg; Christian Eshleman, Strasburg; Peter S. Reist, Lititz.

Season Reports.

President Hershey started in the spring with 60 colonies, of which he sold 8. He has at the present time 108 colonies. He also got 250 pounds of honey; raised 250 queens. Mr. Hershey pays more attention to raising young swarms than to growing honey.

He also has Mr. Detwiler's colonies under charge. There are 65 colonies; he got 787 pounds of box honey and 80 pounds of extracted, and 3 young colonies. They are now gathering honey fast. This is a small yield—too many old queens. There are 250 colonies within the radius of a mile of his place.

A. B. Herr began the season with 5 colonies, and now has 12. He tried to make swarms, not honey.

L. Fleckenstein began with 9 colonies. He got 215 pounds of honey, and expects a good deal more. His bees cross the Susquehanna into York county, and bring over buckwheat honey. He has 13 colonies now, although he tried to get honey rather than new colonies.

John Eitermiller started with 19 colonies, now has 22, and got 400 pounds of honey.

J. H. Mellinger began with 12 colonies, and increased them to 16; he got about 275 pounds of honey.

I. G. Martin started with 30 colonies, and increased them to 32. He has also received 760 pounds of honey up to the present time.

Elias Hershey began the season with 24 colonies, increased them to 29, and has taken about 750 pounds of honey.

Mr. Thurlow started with 9 colonies, increased them to 14, and has so far obtained 225 pounds of honey.

J. B. Eshleman wintered 25 colonies; he now has 30; his yield of honey is 400 pounds. The hives are well filled with honey and are ready to go into winter quarters. He has raised a good many queens. He introduced new queens into a good many of his colonies, which was a drawback.

Do Italians Gather Honey from Red Clover?

The above question was proposed by I. G Martin, who asserted the affirmative.

Mr. Mellinger also advocated the affirmative side of the question. He believed much of the honey gathered by Italians is derived from red clover.

J. B. Eshleman followed with the same views. Go into any clover field and you will find it covered with Italians. If they don't get honey there what are they there for?

I. G. Martin placed on exhibition a case of red clover honey, which was very beautiful. Also some "honey-dew" boxes that were fine.

J. F. Hershey believed we get more honey out of the red clover than the white. He can see the clover fields in his vicinity fairly swarming with bees. Perhaps the western apiarians have clover that grows more rank than ours, so that the bees cannot reach it.

L. Fleckenstein asked why more honey is stored in the spring than afterwards, when the red clover comes into blossom?

A Bee Feeder.

J. F. Hershey had on exhibition a bee feeder, which he believed to possess many advantages. It introduces the food just where the bees are, prevents robbing, creates no excitement and allows but few to get at it at one time. He explained the manner of its use, and it met with the approval of the society. He also said his colonies last winter did well. They began making brood rapidly, and he has not lost a single swarm in three years. He wintered 60 colonies.

"Dew Honey."

The "dew honey" was tested and found to be far inferior to clover honey. It was also asked whether this honey was good to winter bees on. The general opinion is that it will do for that purpose, especially in mild winters.

Grape Sugar as Bee Food.

The value of grape sugar was also discussed. The feeling was against its use to feed bees. There is not enough of sweetening in it. Good cane sugar is cheaper at double the price of grape sugar for this purpose.

A Bad Season.

The season on the whole has been a poor one for honey. Too much rain is blamed as the cause for this. It has been more profitable to raise queens this season than honey.

The Best Plan to Raise Queen Cells.

J. F. Hershey asked the above question, and called for the members' views.

Mr. Thurlow gave the methods of the distinguished apiarian, H. Allen, of Massachusetts, at some length.

Mr. J. F. Hershey detailed his own method, and said he had no trouble in raising full queens.

Transferring Swarms.

Mr. Mellinger asked whether it was too late to transfer swarms?

If there is an abundance of honey it may be done now, but it requires skill. A better time is the spring, when it is comparatively easy and nearly always successful.

How Large Should a Hive Be?

Mr. Herr thought the lower box ought to be of about 2,000 cubic inches inside capacity. These dimensions have given him good results.

Mr. Mellinger advocated the use of a hive of 1,728 inches capacity.

I. G. Martin has Langstroth's hive, which is of about 1,700 inches capacity. He believes you get more honey out of such hives.

Mr. Mellinger thought it depended far more on your queen and bees than it did on the size of the hive.

Elias Hershey believed a hive a foot square is the best of all sizes; the bees can better take care of themselves in it.

Mr. Fleckenstein, after trying many kinds, has now a hive a little larger than a foot square.

Mr. Thurlow believed a broad chamber of 2,000 cubic inches is entirely too large. In such a case more honey is stored there than will winter two swarms, and very little in the boxes.

Average Yields.

It was asked what the average yield of honey was in this county per hive. Elias Hershey one season averaged fifty-three pounds. This year his average will not be over twenty-five. I. G. Martin said his highest average was forty-eight pounds. Last year it was only thirty-five, while this season it will not exceed twenty-five pounds.

There being no further business, the meeting adjourned to meet again on the second Monday of November.

LINNÆAN SOCIETY.

A stated meeting of the Linnæan Society was held on Saturday afternoon, July 31st, in the ante-room of the museum. Vice President T. R. Baker was in the chair, and six members and one visitor were present. After the usual preliminary business was transacted the following contributions and donations were made to the museum and library:

Donations to the Museum.

Two fossils from the Susquehanna, by Mr. Wm. L. Gill. One appears to be a species of *Spirifera*, and the other a transverse *Fucinal* impression. Three bottles of insects, collected at the Tucquan encampment, near York Furnace Bridge, on the 14th and 15th of July.

[The most abundant insects in that locality at that period were *Tetraopes tornator*, *Chrysochus auratus*, and *Lygœus aulicus*, and these were found on the *Asclepias*, or "wild cotton." It is remarkable that the insects most abundantly and most constantly found upon this plant, are beautifully formed and brilliantly colored. The next most abundant, and also the most conspicuous insect in that locality on that occasion, was the large black *Prionus laticornis*, the type of a family of *Logicornia*. I confined two large specimens of this insect in a tight-fitting tin box, and after my return home I forgot them until the 28th. When I then opened the box I found one of the specimens intact, but the other one all eaten up except the hard coriaceous parts, by the larva of a *Dipterous* parasite, the eggs of which may have been deposited in or on the beetle before it was captured or confined in the box.—S. S. R.]

Three arrow-heads, found and donated by Wm. L. Gill, very perfect in form, two of them being of the ordinary form, and the third one cone shaped with a square base. The long time that has intervened since the manufacture of these implements does not seem yet to have exausted the number, and those that are accustomed to searching for them never fail to find a few, although many thousands of them have been picked up since the red men have disappeared from the territory they once inhabited. One is of white quartz and the other two a light-colored variety of chert.

A beautiful specimen of the "Snowy Heron," *Ardea candidissima*, donated by Mr. A. K. Kauffman, Oreville, Lancaster county, Pa. This bird was shot by him on the Little Conestoga, July 20, 1880. These birds usually occur in large flocks along rivers and large swamps, and only occasionally venture inland. Pennsylvania is about the limit of their usual

northern range, although they have been shot in Massachusetts. They feed on small fishes, crustaceans and insects. This specimen seems to be a young female, and not yet in the full adult plumage. Some years ago when the "Tucquan Club" descended the Susquehanna in an open boat, a great many of these birds were seen just above Port Deposit.

A specimen in alcohol, of an immature species of *Ranidæ*, or frog, by Prof. Baker. This animal, in its tadpole state, had been placed in an aquarium in November, 1879, and had developed almost to the frog form in July, when it died, from causes not clearly known.

Dr. M. L. Davis donated a bottle of the larva "*Sciera Toroneura*," commonly called, in their collective capacity, "Worm Snake," from their habit of moving in a procession resembling a snake. These little larvæ were found by Dr. Davis in an alley in Millersville about 5 o'clock on the morning of July 29, 1880, and is a repetition of the phenomenon observed by Mr. Eaby at Spring Garden, and described in the *Examiner*. See page — of THE FARMER.

Mrs. Zell presented an interesting member of the Mint family for inspection, and also a "leafy raceme" of the flowers of a species of *Molucella*, commonly called "Molucca Balm," or "Shell Flower," which is a native of Syria, and is occasionally cultivated in flower gardens, but this specimen was found accidentally growing wild in the vicinity of Lancaster. The genus is notably distinguished for its enlarged bell-shaped menobrancus calyx, with clusters of spines subtending each.

Donations to Library.

"Official Gazette of the United States Patent Office," No. 26, Vol. 17, and Nos. 1, 2, 3 and 4, Vol. 18. "Proceedings of the Academy of Natural Science," Part I, January, February and March, 1880; LANCASTER FARMER for July, 1880; "Proceedings of the Davenport Academy of Natural Sciences," Vol. 2, Part 2. Sundry catalogues and circulars relating to scientific and other publications.

Historical Section.

Five envelopes containing fifty-one local and general scraps of history and biography, ten of which immediately relate to persons and things of Lancaster county.

Papers Read.

A paper on the experiences of Messrs. Baker and Rathvon, relating to the development of the frog, in which both failed.

Under scientific gossip it was stated that an error existed in the proceedings of the June meeting. The "RedChick Weed" does not belong to the genus *Stellaria* and family *Caryphyllaceæ*, and, properly considered, is not a Chick weed at all. It is a "Pimpernal," and belongs to the genus *Anagallis*, and family *Primulaceæ*, and the record stands so corrected.

Adjourned to Saturday, the 28th of August next, without further notice.

AGRICULTURE.

Agriculture.

Agriculture is a progressive art. This is attested by the spirit that now animates the greater part of the rural population of the country, it is proven by the rivalry in our State, county and local exhibitions of farm productions. It is seen, too, in the recent formation of agricultural societies and farmers' clubs in different parts of the country.

The spirit of inquiry is certainly abroad among farmers who have thus been almost the very last to form associations among themselves for their own advancement. The interests and the wants of the agriculturists are now discussed in these humble assemblies as well as the principles that underlie the science of agriculture, as never before.

In short, the farmer has begun to think and to study the position he holds among his fellow beings in other pursuits of life. These facts, I maintain, are promises of a greater degree of future proficiency in his calling than he has yet been able to show. Whether anything in the shape of unity of interests and protection of farmers as regards the prices of the articles they produce for sale will result remains to be seen. While almost every trade and occupation of man has now its Trades Union for the protection of the prices of its own labor, the farmer has none, every one sells when he can, or at furthest when his necessities dictate, and buys when he is able.

Often at times when our markets are most depressed and when prices languish, his necessities compel him to throw his produce upon the market and the result must be a low price. Now if the farmer could have some kind of organization that would afford him some pecuniary aid, and allow him to hold his crops until the markets were relieved, it seems to me all that is reasonably possible would be obtained. In a depressed market, as every one knows, when the supply so largely exceeds the demand, an immense loss of produce must result, and this must be followed sooner or later by a greater rise in price than would otherwise have been possible—hence a surcharged market is a loss both to producer and consumer.

How shall we remedy this evil? Will the formation of farmers' Trades Unions prevent it, by compelling every farmer to hold his grain, meat and vegetables till they will bring a certain price, or until the necessities of the consumer compel him to pay more? Would it be right thus to keep bread from the mouths of the hungry while plenty really reigned abroad? Would it be right thus to inaugurate a war of prices of the prime necessities of life?

That the formation of the many so-called Trades Unions among our mechanics has been of any advantage to the country at large admits of grave doubts; that their results have been detrimental would not be difficult to prove. If it were possible it would be a matter of regret that such a state of things should be brought about among farmers, but perhaps the same argument that justifies Trades Unions in one case would not forbid them in another.

There is probably no class of men so generally in debt as the farmers. In looking around among one's neighbors we must see that almost five-sixths of them cultivate mortgaged farms; the necessities of these men are therefore imperious and must not be disregarded if we would keep the sheriff away. Everything must be made the most of; the labor of his own hands as well as that of his wife and family must all be made to contribute to the preservation of their common home. In short, economy must be practiced in every department of the farm and household; it is the vital watchword of success.

In course of time there is no doubt that new improvements in the methods of cultivation of the soil, in making manure and in the simplification of farm machinery will result from these associations among farmers. This it is reasonable to expect. It may be within the limits of possibility that these improvements of the farmer will reduce the real cost of the necessities of life and thus practically lower their price.—*T. B., in Lancaster Inquirer.*

Changing Seed.

There seems to be no idea more thoroughly believed in by experienced farmers than that it is a great benefit to change seed occasionally; yet it is by no means an undisputed fact, and we know of some intelligent men—indeed some who stand among the most thoroughly educated and experienced in the farming business—who contend that this supposed necessity for a change of seed is entirely imaginary.

We confess to a sympathy with those who think an occasional change necessary; and yet we have so often found in the light of a new and careful experience, that even practices very time-honored come to be abandoned, that we are always to reconsider any opinion, no matter how strongly held. The change is thought to be particularly useful in potatoes, and a change of seed in this article is generally made as regularly as crops are rotated from year to year. But one of our friends is very emphatic in regard to the potato, that no change of seed is required. He has had one potato—that is one variety of potato—year after year for ten years, and they are as good as ever. In his opinion it is not that a variety is sick of the ground that it sometimes gives out; but that it is diseased from ordinary unhealthy causes. It is simply a change of an unhealthy stock for a healthy one, and not a wearing out of a variety.

The matter has a practical importance, as people often put themselves to a great deal of trouble and expense in order to make a change in the seed. If the suggestion made be in the line of a true reason for the supposed benefits of a change, proper care in saving healthy seed will be as good as a change. But we must be satisfied that the suggestion is correct and that the truth lies in the few experiments made. There are two sides, and sometimes several sides, to all questions of this nature. We have personal knowledge of trials made by farmers forty and fifty years ago, when the varieties of potatoes generally cultivated by our best farmers were comparatively few to what they are now, and whose crops, in using the same kind of seed year after year became poorer and poorer, though there was no apparent disease, and the only remedy they had was a change of seed. Sometimes it was the same variety obtained several hundred miles away—from the State of Maine, for instance—and the yield was double, the potato larger and quality better.—*Germantown Telegraph.*

Old Time Agricultural Implements.

A correspondent of the London *Times* writing from the interior of Turkey, says in regard to the agricultural stagnation of the country: "The common plough of to-day is of the same pattern as that which, as is shown by ancient monuments, was used before the time of Moses, and winnowing may still be seen performed as in the days of the Ninevites. But there have been striking instances of the readiness of the people to accept new ideas. An English Consul some twenty years ago introduced the potato root into the neighborhood of Antioch, and after some suspicion had been overcome the people became very fond of it, and gave diligent attention to its cultivation; and at the present time hundreds of poor families are largely supported by it. An American missionary only a few years ago brought out an ordinary farming mill for winnowing grain, and there are now 150 such mills in use in one district alone. Only the other day the first American plow that had ever been seen in Aintab arrived there. It excited nearly as much interest as would the appearance of a Zulu savage in the streets of London; but every man who went to see it went away muttering to himself that 'the English have a great deal of brains.' There is no doubt, it would seem, the people would avail themselves of good agricultural implements when once introduced, and would soon adopt improved methods of cultivation. The soil is there and the people, and both are capable of ample development. Nothing is needed but the most elementary conditions of good government, personal security and protection to property."

Bone-Dust as a Fertilizer.

The more this substance is used for fertilizing purposes the greater its value is appreciated. It is well known that in England it is valued higher than any other substance. There farmers do not only use up all the bones of their own country, but the importation of bones from other countries has assumed gigantic proportions. All the old battle fields have been ransacked, and unless report do them injustice many an old fellow whose bones were supposed to rest in peace in some grassy, daisy-dowered churchyard, would have to hunt some modern turnip field to find all that remains of them. Foreign countries have not only to pay tribute to England for their wealth during life; but even their bones have to follow, in order to enrich British soil, as while living they worked to fill British pockets. Australia sends an enormous quantity of bones to England. It has become such a heavy trade that the article itself was found too light for profit. Science has been called in to enable the ship-owner to take the same weight in less bulk. The bones are first ground, then the dust mixed with some substance which will give it just enough adhesiveness to make the particles stick together. Then the material is put under heavy pressure in mounds about six inches square, so that it can be packed in the hold without any loss of space. One ton of this bone-cake measures only twenty-six cubic feet. Of course these bones are all of wild or domestic animals, but still "silence is golden."—*Germantown Telegraph.*

Barbed Fences.

R. Noyes, of Coles county, Ill., writes: "I have no direct or indirect interest in any fence, except that I want to use the cheapest and best. Six years ago I put up 40 rods of barbed wire fence and each year have added to it, and like it so well that this year I am selling off (good) and burning up (decayed) both rails and board fence, because I think it better and cheaper to build wire fence than to repair the old, although I am making and selling new wooden rails on the place. As to posts, I find that a few good posts answer, with young trees set in the rows so that when the posts are gone it leaves your fence an ornament instead of an eye sore. Then it is so cheap. Two wires will turn the worst large stock; three for calves and sheep, and five for hogs. The railroads use nothing use nothing else here; and as a man and a boy can put up half a mile in a day, after the posts are set, it saves labor. 'Travelers' do not steal it for kindling or seat boards, or travel across your land. As to its being 'barbarous,' I have never known an animal really hurt with it, and if they are scratched they will not try it again. The only place I have found it would not do was around small lots where numbers of cattle are kept; they will hook each other through it."

Spike Fences.

Those fences, we notice, are getting more and more into favor, and so far as we know directly they are much approved of. The objection made to them by those who have not tried them, we do not think will hold good—that they injure the cattle in being forced by one another against them. Against those we have examined this objection will hardly stand, for while the spikes are likely to keep off the cattle after they once find out what they are, the spikes are not long enough to do any injury worth mentioning, or really more than the wire without the spikes. Besides this, the fence is an excellent protection against trespassers—in fact, they may be considered as a perfect protection; and in this respect will serve the interests of farmers and others very satisfactorily. It will debar even dogs from trespassing. The expense also, when its durability is considered, is in its favor when once understood, as there will be no difficulty in attending to the repairing of it.—*Germantown Telegraph.*

Salt and Ashes.

A few years since I had an old pasture that had almost run out, covered with weeds and patched with moss. I mixed a few barrels of salt and wood

ashes, and applied about two barrels of the mixture per acre, covering about half the lot. The result surprised me. Before fall the moss had nearly all disappeared, and the weeds were rapidly following suit, while the grass came in thick, assuming a dark green color, and made fine pasturage. The balance of the lot remained unproductive as before, but the following year was salted with like results.

HORTICULTURE.

Pennsylvania Peaches.

That Harrisburg is in a good peach-growing district there can be no reasonable doubt. The peaches brought to our markets are of fine size, quality and flavor. There is still less room for doubt that peach culture can be better developed in this vicinity than it is.

At the last annual meeting of the Pennsylvania Fruit-Growers' Society extracts were read from the manuscript of a little book on peach culture in Pennsylvania, and an address was delivered by its author, Mr. John Rutter, of West Chester. The book contains the result of Mr. Rutter's experience in thirty years of peach culture in this State and in Maryland. His experience differs so much from that of other peach-growers in this State as to entitle his book to careful study. He declares, after having grown many thousands of trees near West Chester, as well as in Maryland, that "peaches can be grown in this State on a scale commensurate with the demands of our cities and towns, in orchard culture, in larger quantities than they are now or can be raised in the most favored districts of Maryland and Delaware, and can be sent into our markets in the better condition and at a much larger profit." If that statement can be substantiated, and Mr. Rutter writes his book to prove it, the matter is very important to the farmers of the counties near the great markets of eastern and western Pennsylvania, which now mainly receive their peaches from Delaware and Maryland. The general impression has been that the peach tree grown in Pennsylvania or further north is especially subject to injuries and diseases. Mr. Rutter says there is only one disease destructive of the tree—the specific disease known as "yellows"—and that all others are only slightly injurious, and as common in what is considered the healthy district of Maryland as anywhere else. The "yellows," which is as fatal to the peach tree as yellow fever to man, became so common in and around Philadelphia early in the present century, that Judge Peters, who first gave it its name, advised the abandonment of attempts to raise peaches except for domestic use, "by planting a few trees every year." The advice has been generally followed in Pennsylvania, and the fatal disease has continued to kill the trees and keep alive the belief that the peach could not be successfully cultivated in this State.

Mr. Rutter delares that "Eastern Pennsylvania can supply the markets of Philadelphia and New York with better peaches than now come from the celebrated peach districts of Delaware and Maryland."

Salt for Plum Trees.

A farmer's wife in Randolph, Vt., writes to the *Country Gentleman* on the use of brine for preserving plum trees, as follows:

Many years ago a blight called the black knot destroyed all the plum trees, and then attacked the cherry trees and killed them. Every one felt the loss of these delicious fruits, and purchased new trees to take their places; but in spite of all efforts to save them, they met the same fate. Discouragsd with repeated failures, the inhabitants of this vicinity gave up, and luscious plums were unknown. Three years ago I sent to another part of the State and purchased a few trees of different varieties, and set them out with care, hoping to have more favorable results. For two years they grew finely. In the spring of 1879 I saw signs of the old disease upon the limbs and twigs; I felt quite desperate, and determined to do something for their salvation. It was evidently a case where it would be kill or cure. I had heard that plums were indigenous upon the seashore and islands in the ocean. I had quite a quantity of fish brine and salted cucumber brine, and I gathered it all, and with a small mop washed the trunks of the trees, and gave the boughs a good shower-bath of the brine. What was left I turned around the roots of the trees. Two trees I left unwashed. Everybody said I had killed my trees. Perhaps I had; but the black knot would have killed them if I had not. I bought the trees myself, and I had a right to experiment upon them if I chose. The last of May, my salted plum trees were one mass of bloom, and in September I could sit down under them and eat all the plums I chose. They were delicious. I had the Lady Washington, the large white egg plum, the apricot, and some other varieties that I could not name, as the labels were effaced. The trees that did not enjoy the salt bath did not blossom or fruit, made little growth, and the knots put in an appearance.

The Early Richmond Cherry.

After all there is no cherry so certain in producing a crop, or that can be applied to so many purposes as the Early Richmond. It seldom fails in affording a fair yield, and it frequently is enormous. The trees never grow large, and the fruit can most always be picked from a step-ladder. They can be used for puddings, pies, and canning for the winter. Many dry them and make pies of them until they come again. Even for eating, when full ripe, they are good and wholesome. The young trees begin to bear the second year; they are hardy and can be purchased at a low price. It is true they may have to be renewed oftener than some other kinds, but this is easy and cheaply done. They are earlier, too, than any others and continue on the tree longer. Besides, the birds do not steal them, they being a little too acid for their "sweet tooth." The wonder is that a score of times more are not grown of them than are to be found in gardens and farms. As we write this, there are two or three trees almost within sight of our office, literally covered with fruit, as perfect as any we ever saw. They are as pretty a sight as any flower. Our own trees—we are now growing a fresh supply of them—have begun to bear very well, and in another year we shall have as many as can be disposed of.

We therefore say to all having a little ground to spare, plant from two to a half dozen Early Richmond cherry trees. They will be found to be profitable either for marketing or domestic purposes.—*Germantown Telegraph.*

The Tomato.

Many Americans think that the tomato, now in season, originated in this country because it is so freely used here, and that it has become quite recently an article of food. The origin of the vegetable, or fruit, as some claim that it is, is not positively ascertained, though there is reason to believe that it was first found in South America, and that it was cultivated centuries ago in Mexico and Peru. Several varieties were known in England toward the close of the sixteenth century, and Gerard, the surgeon and botanist, speaks of it, we think, in his "History of Plants," having himself introduced it into the kingdom as an exotic. Dodoens, the Netherland herbalist, mentions the tomato as early as 1583 as a vegetable to be eaten with pepper, salt and oil. It belongs to the night-shade family, and was used in cooking by the Malays more than a century and a half since. It is extensively raised in Southern Italy, and employed there as an accompaniment to nearly every dish, particularly the macaroni. But neither there or anywhere else in Europe is it commonly eaten, as it is here, separately and in quantities. In England it is sparingly produced, requiring a hot-bed in the spring, and is in consequence high-priced. The Italians formerly called it golden apple, and now call it love apple, as it was once designated in this country. The appearance of the tomato on the table has greatly increased in Europe within a few years; but in no land is it a regular dish—much as it is used for a sauce abroad—as in the United States, where it is also pickled, preserved, and confected.

Things That Pay

It pays to have a garden if you will take care of it; if you can't or won't do not attempt it. Perhaps a dozen of your neighbors are in the same fix; in which case you might club together and hire a gardener on the "co-operative plan." If you make a garden it pays to enrich the ground liberally. Nothing from nothing is one of nature's by-laws, if not a part of the constitution of things. Stable manure is adequate for nearly all purposes, but good superphosphate is more convenient and has the advantage, for nearly all purposes, of being free from weeds. The value of wood ashes, especially for potatoes, peas, early beans, etc., is also very great. It pays to withhold your seeding until your ground is dry and can be thoroughly pulverized, particularly for all root crops and for corn. The distorted and cooked parsnips, salsify and radishes, and the slow growing and stunted corn, are results generally due to soggy and lumpy soil. It pays to have a walk through your garden, each way, made with a loose stone foundation and filled in with coal ashes. It pays to sow your vegetables in long rows instead of the old-fashioned beds, and to use stakes and line in planting everything, that your rows may be straight and even. It pays to rotate crops from one spot in the garden to another. When the ground is wormy it pays to use lime. It pays to kill a weed wherever and as soon you see it.—*Golden Rule.*

Cultivating Peach Orchards.

The peach tree is more sensitive to neglect and retarded by growth in grass, as well as stimulated by good cultivation, than any other of our common fruit trees. We have never seen a successful orchard in grass unless subject to constant and heavy manuring. We observe a recent statement by C. Engle, of Paw Paw, Michigan, that he has an orchard of eighteen years old bearing abundant crops of excellent peaches through the influence of cultivation. He plows it early every spring to a depth of five or six inches. In two weeks he passes a heavy harrow both ways. Afterwards a two-horse cultivator, set to run four inches deep, is passed over the ground from three to five times. This ends the season's cultivation. Mr. Engle thinks there are more peaches of the best quality borne on these trees than any equal number elsewhere in the State. In allusion to the recommended practice of sowing buckwheat in peach orchards, instead of keeping them clean and mellow, Mr. E. says he would as soon think of sowing buckwheat among his corn to insure a heavier crop. The truth is, while every farmer knows that clean culture is absolutely essential to success in his common farm crops, many fail to apply the same knowledge to their more expensive orchards.—*Country Gentleman.*

Thinning Fruit.

Whenever we tell a friend he should thin his fruit, he talks about the curculio, the codling-moth, the birds and the boys, and "guesses there will be thinning enough before the season gets through." This is true in its way. Wherever these troubles exist to any great extent it is not much use to grow fruit at all. But there are some who do not leave all their gardening to insects and vermin—some who dispute the right of these pests to interfere at all, and wage war, successful war, against them; but even these do not half appreciate the value of thinning their fruit.

The evil of overbearing is particularly apparent in dwarf pears and grapes. As a general thing there is rarely a grapevine but would be benefited by having its bunches cut away, and some of the free-bearing dwarf pears might have from one-third to one-half. The grapes may be cut away as soon as they can be seen; but the pear should be left until somewhat grown, as they often fall after they are pretty well advanced. It not only helps the size of the fruit, but is a gain to the future health of the tree.—*Ger. Telegraph.*

Wash for Fruit Trees.

A correspondent of the *Fruit Recorder* writes as follows: "I notice in a recent issue a number of recipes for coddling moth. I have tried various remedies on my orchard, some of which have been suggested by scientific men. I will now give you my experience with them. My orchard consists of trees ranging from one to fifty years of age, and I find the coddling moth ready for attack at any age. Last year, when pruning, I made a wash of my own, and tried it with good results. The following ingredients compose the wash: One quart of lime, such as is used by the plasterers in 'white-coating,' one peck of leached wood ashes, two pecks of cow manure, one quart of soft soap, and one large tablespoonful of Paris green. I wet the mixture thoroughly, to make it like paste, beating it thoroughly until it became tough. I added twelve quarts of water, or enough to give the trees a thorough coating. I find, on the trees so washed, that the old bark is dropping off and leaving the new bark perfectly smooth. On all the trees I have washed I see a perfect improvement."

DOMESTIC ECONOMY.

Butter-Making.

The following useful hints on butter-making are contained in a recent circular issued by the Earl of Beesborough to his Irish tenants:

"For the information of those who have not yet been able to make butter, I offer the following suggestions: Have a proper dairy or a separate room for your milk, well ventilated, but not too light; far away from stable, piggery, or manure-heap. The floor should be of flags, tiles or concrete, very close and evenly made, so that it can be easily washed without leaving any substance behind likely to create a bad smell, as it would be injurious to your milk and butter. Clay floors are very bad. Be sure not to use your milk-room for any other purpose than your milk and butter. Wash or sponge the cow's udder before milking, and your own hands before commencing each cow. Use the finest hair strainer you can get. Keep all your milk vessels scrupulously clean. Never use soap in cleansing your milk vessels, not even in washing your hands, when engaged with your milk or butter. Do not keep your milk too long standing before churning. Twenty-four to thirty six or forty-eight hours, according to the temperature of the weather, will be enough. Avoid all touching of the butter by the hand. Use the best salt made, very fine. Wash and press all the milk out of the butter before salting, using plenty of cold spring water. You cannot be too careful about this. In packing in firkins get the best you can of well-seasoned oak, beech, or ash, clean looking and smooth on the inside, and bring them clean to market. In preparing your firkins let them be filled the day before wanted with boiling water, let them stand until cold, then rinse with clean, cold water, into which a couple of handsful of salt has been put. This will make your firkins sweet and staunch. Pack

your butter in the firkins as close as possible, and send it to market as soon as you can. Let cleanliness be your constant care, from the milking of the cow until you bring your butter to the market. There are few things a farmer's wife or daughter ought to be prouder of than her dairy and its produce. The butter buyers should encourage the use of the most suitable firkin, and might also be more careful when the butter comes into their hands. The firkins are frequently rolled about on the wet and dirty yards and damp floors, which might be avoided. Railway and steamboat companies treat firkins in the same rough way. All should endeavor to improve and try to bring out butter in the cleanest and most creditable condition into the English market. Then it would take its proper place, and you would get the highest price, defying foreign competition."

Cisterns for Farm Buildings.

In the endeavor to have everything as convenient as possible about farm houses and farm buildings, there are few things more worthy of being cared for than cisterns to hold the rainwater from the roof. Even where pumps are supplied it is often an advantage to have cisterns in addition, as soft water, which pumps will not always supply, is of great value. At any rate it often happens that though there may be a pump convenient and water furnished by it all one can desire, even the little labor that a pump requires for a single horse or cow, becomes a great task when many are to be supplied. We know of one farm where seventy-five head of cows, more or less, are on hand; and all the water they require has to be furnished from a pump; and it is no small job to do. Yet on this very farm the land lies so convenient that a cistern could be built on an elevation a little above the cattle yard, and all the water from the roof could go in it, and be drawn off into the cattle yard by its own natural flow, without pump or labor of any kind. So it often happens for household supplies. A cistern can be built which would cost little, and yet save the women folks—generally overworked—many an hour's labor, besides giving them a quality of water they all so much desire.

There is a prevalent idea that they cost a great deal to make: but it is far less than is generally imagined. If the land is solid—say either of clay or rotten rock—the sides of the natural ground may be shaped like a wall, and a lining of mortar, say half an inch, put on before the final cement coat is given. But if there is any chance of settling, so as to crack the mortar framework, a four-inch brick-work may be built around first. Most ground is, however, firm enough for the purpose. The mortar as it is laid on to form the lining or framework of the tank should be very well worked by the trowel. The object is to work out all the air. It is the air-spaces in the wall that make it porous, and it is through the pores that the water escapes. A working of the trowel backwards and forwards a few times over the soft mortar expels the air and closes the pores. This is especially important to be borne in mind when applying the cement. This need not be put on very thick. The merest film, if properly worked, is sufficient.—*Germantown Telegraph.*

Mixed Milk.

The following from the *Cultivator* seems to show that the milk of different breeds of cows cannot be profitably mixed:

"A Whately dairyman, owning twelve cows, mostly Jerseys, remarked, upon putting his cream into the large churn, that there was cream sufficient in quantity to produce sixty or seventy-five pounds of butter. Yet, upon churning and weighing the product, there were found to be but thirty-eight pounds. The next week he kept the milk and cream of his grade Jerseys and Shorthorns separate, churning eight days' cream instead of seven, as in the first experiment. However, he was gratified at securing eighty-two and a half pounds of butter. A friend and townsman, who, last winter, kept nineteen cows, grade Jerseys and Shorthorns, found that his animals were making the usual returns in butter, the yield in butter being about five pounds per cow, weekly. Finally, he set the milk of each cow separately, with the result that he hadn't a cow that yielded less than six pounds each. If these facts really prove what they seem to, a good many farmers are losing a large amount of butter every week by churning the cream of a number of different breeds together." The results of other experiments may not be so decided. Some other reason may explain the different results.

Uses for Old Cans.

What we do with the old tin cans? They accumulate so fast, and it seems so wasteful to throw such a quantity of tin into the ash heap. A writer in a recent number of the *Scientific American* describes several uses to which they can be put, and his suggestions are such that they may be adapted in many various ways.

With a large pair of shears the cans may be treated as pieces of tin, and, with a little ingenuity, a bread grater, a rude dipper, a fruit gatherer, and a glue pot, may be constructed.

But the most attractive articles are the bird-houses and flower-pots and stands. For the first the cans were dipped in a large pan of melted asphalt, and then rolled in dry sand. This gives them a natural ground color, on which can be fastened, while the asphalt is still warm, the ordinary dry packing moss used by florists, wood-mosses, short dry twigs, small cones and burrs, to give a picturesque effect. If the lid is still attached to the can by a bit of solder, it can be left for a door-step for the birds. The various ways of attaching the can to the tree will suggest themselves according to taste.

A single can covered with birch bark and ornamented with burrs, acorns, etc., makes a pretty flower-pot; two partially telescoped, with a portion cut out of the side for the reception of the soil and plants, make a miniature log; three rows, placed one above another by means of different-sized round boxes on a round table, make a very pretty stand. In all these cases, the cans, the boxes, and the table, should be well covered with asphalt, and then ornamented according to taste with the materials before mentioned. The cans are useful in rockeries also; but these, too, must be thoroughly treated with the asphalt.

To Prevent Sneezing.

A writer in the British *Medical Journal*, after many other experiments to prevent sneezing, stopped up his nostrils with cotton wool, and says: "The effect was instantaneous; I sneezed no more. Again and again I tested the efficacy of this simple remedy, always with the same result. However near I was to a sneeze, the introduction of the pledgets stopped it at once. Nor was there any inconvenience from their presence, making them sufficiently firm not to tickle, and yet leaving them sufficiently loose to easily breathe through." This is really worth knowing, for incessant sneezing is among the greatest of smaller ills, and it seems only a rational conclusion to hope that this simple plan may furnish the most efficient remedy against one of the most distressing symptoms of hay fever.

Washing Fluid.

One pound of Babbitt's potash, half ounce carbonate of ammonia, half ounce salts of tartar. Cost, 30 cents. Put the potash into your large water pitcher, and pour on it one gallon boiling water (be careful it does not spatter up out of the pitcher on to your hands;) let it stand till cool; then add the ammonia and tartar; pour into a jug, and cork. Use two-thirds of a cupful. Soak your white clothes over night, ring out, and then put through the washer in real hot water; put two-thirds cupful of the fluid in the boiler, then your clothes, with sufficient water to cover nicely; let them boil twenty minutes; take out, rub on the board, and you will see how easily the dirt is removed. It saves both time and labor—quite essential on wash-days. Then suds and rinse as usual.

Protection Against Mosquitoes.

As a sure remedy against mosquitoes and other obnoxious insects, the tincture of Persian insect powder has been recommended. The success of the preparation depends upon the way it is applied. The tincture must be prepared with alcohol of full strength, and not diluted. It should be used with an atomizer, and, employed in this manner, it is said that it will effectually rid a room of insects of all kinds in a very short time.

HOUSEHOLD RECIPES.

PICKLED MUTTON HAMS.—Three gallons of soft water, one pound of coarse sugar, two ounces of saltpetre, three pounds of common salt. Boil and remove the scum, and when cold pour over the meat. In two or three weeks the ham will be excellent for baking or boiling. It may be smoked if preferred.

HOW TO MAKE TEA GO FURTHER.—A method has been discovered for making more than the usual quantity of tea from any given quantity of the leaf. The whole secret consists in steaming the leaf before steeping. By this process it is said fourteen pints of of good quality may be brewed from one ounce of tea.

BEEF ROLLS.—The remains of cold roast or boiled beef, seasoning to taste of salt, pepper and minced herbs; puff paste. Mince the beef tolerably fine, with a small amount of its own fat add a seasoning of pepper and salt and chopped herbs; put the whole into a roll of puff paste and bake for half an hour, or rather longer should the roll be very large. Beef patties may be made of cold meat by mincing and seasoning beef as directed above and baking in rich puff paste in patty tins.

FISH PUDDING.—Three pounds of boiled fish; a large lump of butter; a tablespoonful of flour; two cups of fresh milk. When boiled it must cool a little. Add to it the yolks of seven eggs, the whites beaten, and stir it around; then add salt, pepper and nutmeg. Put it in a buttered dish, and cook for one hour in a pretty warm oven, and then serve. Sauce—Flour and butter and a little broth and capers. This will be found an excellent and toothsome dish.

COLD TEA.—As usually made, cold tea is an unwholesome drink. The tea is made in the teapot, as usual, and then cooled therein, and perhaps allowed to stand in the teapot for many hours before being drank; by this process the tannin of the tea-leaves is extracted and the result is a strong decoction of tannic. To make it properly, the tea should be drawn the usual length of time, say 5 minutes for green tea, 8 minutes for Oolong tea, and 15 minutes for English breakfast; then pour it off into a pitcher or other suitable vessel, allow it to become cool, then place it in the ice-chest.

GINGER BEER.—A good family beer for warm weather may be thus made: Lump sugar, five pounds; crushed Jamaica ginger, five ounces; cream tartar, four ounces; ten lemons, sliced, and five gallons of boiling water. These should be mixed in a vessel that can be securely covered until cool, but should be freely stirred from time to time as the cooling progresses; when lukewarm, add 10 ounces of yeast, and keep in a warm place to encourage the fermentation; strain through a flannel filter, and let it stand to ferment again for a short time, then take off the scum and bottle, the corks being tied or wired down.

MAKE THE LUNCH ATTRACTIVE.—Mattie says she cannot eat her luncheon, and begs you not to insist on her taking one to school. Well, what wonder is it? Who could—especially after a busy morning over books and slates, in a warm recitation room—begin with appetite upon a sandwich cut unevenly, tough bits of cold meat, and a hunk of sticky gingerbread? Take pains with the school luncheon. Cut the slices smoothly and evenly, and trim the cold tongue or ham daintily. Lay it in a fine white napkin, and put the apple or pear or bunch of grapes in nice white paper.

VEGETABLE CURRY.—Cut some onions into thin slices, and fry them a good brown in butter, add a breakfast cupful of milk, in which a teaspoonful of curry powder has been mixed; let all boil together for twenty minutes, stirring the whole time; then add the vegetables previously parboiled, and let the whole simmer by the side of the fire for about an hour. Potatoes, peas, beans, carrots and turnips can be used, but broad beans alone make a delicious curry.

GRAVY FOR POTATOES.—Put a spoonful or more of butter, according to the quantity of potatoes you have, into a frying-pan, and set over the fire until brown, being careful not to scorch it. Mix a spoonful of flour in a cup of thin sweet cream—or milk, if one has no cream—pour into the browned butter, boil up, season with pepper and a little salt if necessary, and turn over the boiled potatoes. This is a very nice way to serve smell potatoes.

TO DRIVE ANTS AWAY.—Some one has asked what would drive red ants away. A little cayenne pepper, done up in a thin paper or cloth, and laid in two or three places about the pantry or storeroom, or, if numerous and persistent, sprinkling about their favorite rendezvous is quite effectual in sending them off. Roaches will also flee from it. Powdered borax has the same effect. Either of these will not fail if accompanied with cleanliness.

TO MEND BROKEN CROCKERY.—To mend broken crockery use lime and the white of an egg. Mix only enough to mend one article at a time, as it soon hardens, when it cannot be used. Powder a small quantity of the lime, and mix to a paste with the egg. Apply quickly to the edges, and place firmly together. It will soon become set and strong, seldom breaking in the same place again.

A GOOD DRINK FOR THE LUNGS.—Wash clean a few pieces of Irish moss; put it in a pitcher, and pour over it two cups of boiling water. Set where it will keep at the boiling point, but not boil, for two hours. Strain, and squeeze into it the juice of one lemon. Sweeten to taste. If the patient cannot take lemon, flavor with vanilla or nutmeg.

LEMON SAUCE.—Beat to a froth one tablespoonful of butter, one cup of sugar, one tablespoonful of corn-starch and two eggs. When very smooth and light add one cup of boiling water. Set the basin into boiling water and stir five minutes. Season with half a teaspoonful of lemon and serve.

YEAST FROM GRAPE LEAVES.—Grape leaves make a yeast in some respects superior to hops, as the bread rises sooner, and has not the peculiar taste which many object to in that made from hops. Use eight or ten leaves for a quart of yeast; boil them for about ten minutes and then pour the hot liquor on the flour, the quantity of the latter being determined by whether the yeast is wanted thick or thin. Use hop yeast to raise it to begin with, and afterward that made of grape leaves. Dried leaves will be as good as fresh. If a dark film appears upon the surface when rising, a little stirring will obviate it.

YEAST FROM PEAS.—To one large teacupful of split bruised peas put one pint of boiling water; cover it closely so as wholly to exclude the air, and set it in a cool oven or by the side of the fire for 24

hours, when it should have a fine froth on the top; a tablespoonful of the water is the proportion (in a warm climate) to one pound of flour; yeast thus prepared is very generally used in Persia, and the writer has employed it in India for three years with perfect success.

POTATO YEAST.—Cook and mash six potatoes, and add water enough to make a thin batter; when cool add a cupful of sugar, a teaspoonful of salt, and yeast enough to make it rise; set in a warm place till light; then put in bottles and set in a dark, cool place till wanted.

HOP YEAST.—Three large potatoes, one handful of hops; put in a small bag; put the potatoes and hops into two quarts of water and boil down to one qdart; take out the bag of hops and potatoes; mash the potatoes fine and throw back into the boiling water; stir flour into this while hot until it is quite stiff; let it stand until it is nearly cold, then add half a cupful of yeast, half a cupful of sugar, one tablespoonful of salt, and half a tablespoonful of ginger; set in a warm place to rise; when light, put in a covered jar and place in a cool place.

HARD YEAST.—Stir into a pint of lively yeast enough flour to make a thick batter, and a tablespoonful of salt. Let it raise once, then roll out thin, cut into cakes with a cake-cutter, and dry in the shade in clear, windy weather. When perfectly dry put in a bag and hang in a cool, dry place. They will keep good six months. One of these cakes dissolved in a little milk or water is enough for four quarts of flour.

PARLIAMENT GINGERBREAD.—The old-fashioned Parliament gingerbread, which is sometimes cut into human shapes and ornamented with gold and silver leaf, is a good, plain cake for children. Boil for ten minutes two ounces of whole ginger, which has been well crushed, in a gill and a half of water. Strain it, and let it get cold, and if it has wasted add water to make up the original quantity. Mix a quarter of a pound of brown sugar, sifted fine, with a pound of flour, a small teaspoonful of carraway seeds and half a teaspoonful of carbonate of soda. Put into this two ounces of butter, and having well mixed a teaspoonful of molasses with the ginger water, make all into a paste. Roll it out on a board to the thickness of rather less than half an inch, and cut into any shape you choose. Put the cake on a floured baking sheet, brush them over with water in which you have mixed a small quantity of molasses, and bake in a moderate oven for a quarter of an hour. When this cake is required of a finer quality, two ounces of candied orange peel, pounded and passed through a sieve, is used instead of the ground carraway seed.

LIVE STOCK.

"Free Martin."

Free martin is frequently used in the *Farm Journal* and other agricultural periodicals. Does the general reader have a clear idea of the true meaning of the word?

If not, I think the following will help him, and in the main be found to be correct. When a cow has two calves or "twins," and both are males, they will both be perfet bulls, i. e. capable of procreating or extending their species.

When they both are heifers, they will both be perfect cows, i. e. capable of conceiving and bringing forth offspring, not differing from the ordinary cow.

But if one of the calves should be a male, and the other a female, then the male will be a perfect bull, with all the instincts of a bull and capable of extending his kind—the female will be an imperfect one, so resembling in shape and general appearance a "steer." She is usually of good size, and thrifty but having none of the sexual characteristics of her species and sex, and never becomes in "heat," never suffers copulation, and consequently never is capable of extending or increasing her kind. This is the free martin. She, as said above, resembles more a "steer" in all her actions and instincts than a cow or a bull, and makes a capital steer. I remember once seeing a pair of medium fine oxen (as I thought) hitched to a cart, when the owner remarked that there was his "free martin." "Where?" I asked. "There, on the right," he replied. I then examined them carefully, and found the owner had castrated the male calf, and had the "twins" broken as oxen. They made a fine yoke. The female in every way equal to the male and being fleshed and marked almost exactly alike, they could scarcely be distinguished, and to tell which was the male and which the female, a "personal examination" was necessary. He assured me that the "free martin" was in every way equal in power, docility and endurance to her "brother." I have ever since hoped to get a pair of thes: "twins," and experiment with them as oxen, but have not succeeded. The strange part of this matter is, that the above phenomena are only applicable to the Bovine species. It does not hold good with the man, the ape, the dog or the human species of any other.

I do not know whether it applies to triplets or quartets in the cow or not. On dissection, rudimentary organs of both sexes are found. Perhaps this article will excite the curiosity of some of your readers enough for them to try the above experiment if they should be so fortunate or unfortunate as to be presented with a pair of such "twins" by some favorite cow.—*Alabama Farm Journal.*

Dogs and Sheep.

In wool-growing districts there is usually a general outcry against the ravages of dogs among the sheep. At almost every session of our Legislature petitions pour in "for the protection of sheep and the taxing of dogs." It does not seem sufficiently known that some species of domestic dogs are beasts of prey, and will commit havoc in a flock of sheep whenever a fair chance offers. The consequence of this is that a farmer, whose hope is in his sheep for the wool they yield and the price they will bring in the meat market, may have all his profits swept away by the ravages of scallawag dogs, which are worthless for any purpose, not kept at his own place, but belonging to some thoughtless or reckless neighbor. A dog is considered by many farmers as a good safeguard against thieves. But all professional burglars are familiar with the means of silencing a dog with poisoned meat, so that while these dogs are often dangerous to an indiscreet visitor, they are harmless to an expert thief.

Certainly the loss sustained by the sheep farmers from the depredations of mongrel dogs surpasses a thousand times over any value that these dogs can be for the protection of other property. Any one of the main reasons of many farmers selling off their sheep is their inability to get any protection against these dogs. A Virginia paper estimates the annual loss to that State by the destruction of sheep by vicious dogs at $1,000,000; and if that be so in Virginia what must it be in such States as Pennsylvania and Ohio. The Virginia paper calls loudly upon the Legislature of that State to levy a severe tax on dogs, and forbid every dog owner to allow his dog on the highway or on the premises of another person under penalty. It further demands that if the dog be caught at large the owner be put under bonds for the conduct of the animal. These may seem to be severe requirements, but they fairly represent the indignation of the sheep farmers and wool-growers. The loss of so much valuable stock without a justifiable cause is enough to excite the indignation of anyone; but indignation has been vented on the subject a long time without producing any apparent effect on the dog owners, and it is clear that a penal statute is the only remedy; but as to its exact provisions we shall not undertake to give an opinion. That these strictures will apply to all dogs we do not say; but if the question is the saving of the sheep or the saving of the dogs, save the sheep.

Facts About Shoeing Horses.

A writer in the New York *Herald* states some facts about how horses should be shod, which are worthy the consideration of blacksmiths, and farmers as well:

Most of the horse-shoers of the country prepare the foot, fit a shoe, and secure it to the hoof in the same manner that a wood butcher fits a shoe to an old wood ox-sled. The mechanism of a horse's hoof is one of the most wonderful and ingenious structures that can be found in all the works of the Creator. Beneath and in the rear of every hoof there is a frog, which is a tough and elastic pad for preventing injury to the animal whenever he plants his foot suddenly on any hard substance. Large rolls or cylinders of India-rubber are placed beneath railroad cars to prevent injury to any part of the car or cargo with which it is loaded. The frog beneath the foot of a horse is designed to subserve a similar purpose. But the manner in which most horses are shod lifts them up, as it were, on short stilts, so that the frog cannot perform its appropriate functions. If we look carefully at the young horse when he is trotting or running, it will be perceived that every foot is brought to the ground in such a manner that the frog receives the powerful blow. By this means all injury to the animal is prevented. Science teaches us to permit the frog to develop and expand downward. But most blacksmiths seem to think that the all-wise Creator made a great mistake when he formed the hoofs of horses. Hence they fall at the frog with red-hot burning irons, with edged tools, and with any other appliance that will enable them to remove the extraneous exercsence. Illustrious ninnies! Why not shave and burn away all the tough callous adipose tissue beneath their own heels, and allow the bare bones to rest on a plate of iron inside of their own boots and shoes.

Sawdust for Bedding.

A correspondent of the *Agriculturist* writes: We have tried for two years dry sawdust in the cows' stable, and on the whole like it better than any bedding we have ever tried. It makes a more comfortable bed, completely absorbs the urine, and the cow is kept clean with less labor than when any other is used. The objection to salt marsh sods, dried, or to headlands and dry muck, is, that they soil the cow and make it necessary to wash the bag before milking. Straw, of all sorts, soon becomes foul, and without more care than the ordinary hired man is likely to bestow, soils the cow's bag also. Dry sawdust is clean, and makes a soft, spongy bed, and is an excellent absorbent. The bag is kept clean with the aid of a coarse brush without washing. A charge of fifteen bushels in a common box stall, or cow stable, will last a month, if the manure, dropped upon the surface, is removed daily. The porous nature of the material admits of perfect drainage, and of rapid evaporation, of the liquid part of the manure. The sawdust is not so perfect an absorbent of ammonia as muck, but is a much better one than straw that needs to be dried daily in the sun and wind, to keep it in comfortable condition for the animals. In the vicinity of saw and shingle mills and shipyards the sawdust accumulates rapidly, and is a troublesome waste that mill owners are glad to get rid of. It can be had for the carting. But even where it is sold for one or two cents a bushel, a common price, it makes a very cheap and substantial bedding. The saturated sawdust makes an excellent manure, and is so fine that it can be used to advantage in drills. It is valuable to loosen compact clay soils, and will help to retain moisture in thin sandy and gravelly soils. There is a choice in the varieties of sawdust for manure, but not much for bedding. The hard woods make a much better fertilizer than the resinous timber. To keep a milch cow in clean, comfortable condition we have not found its equal.

A Knowing Sheep.

The Groton *Journal*, some time ago related the following story, which certainly goes far to prove that a sheep can do some close thinking. A. H. Clark has a sheep which during the summer was pastured with some calves in an apple orchard adjoining the house. There were several trees in the orchard well loaded with early fruit, the trees being about six inches in diameter. One evening Mr. Clark heard considerable noise in the orchard, and upon investigation found the sheep and the calves quietly eating apples under one of the trees. In a few minutes all the apples were eaten, when, to his surprise, he saw the sheep back off several yards and then butt the tree with full force, bringing down a quantity of fruit. The animal proceeded to eat as before, and when the supply gave out the sheep replenished it as before. This was continued at intervals. So persistent was the sheep in his novel mode of tree-shaking that Mr. Clark was obliged to protect the trees, lest the continual bruising of the bark should cause permanent injury.

Breeds of Pigs.

There is a great deal of difference between the Small White Yorkshire and the Jersey Reds. The former are much finer in the bone and in the flesh. They are fatter and have a much thinner skin. Their average weight is one-half less, or perhaps it will be nearer correct to say one-third less. Two or two and a half Small Yorkshires can be kept and fatted on the same amount of food required for an average Jersey Red. The Jersey Reds are probably the most growing breed of hogs we have, and require a longer time than the Yorkshire to mature. They have more lean mingled with their fat than the Yorkshires. The objections to both these breeds—or the "demerits," as our correspondent puts it—are that the Yorkshires are too fat and the Jersey Reds too coarse. The advantages are that the former will keep easily, mature quickly, and fatten young, while the latter grow fat and large, and have a long body, which makes a large proportion of pork. They have strong appetites and are greedy eaters.—*Rural New Yorker.*

POULTRY.

The Messina Quail.

The following is a good description of the Messina quail now being imported into many of the States by sportsmen. The habits and appearance of the bird are as follows: In size it is about one-half as large as the European partridge (*perdix cinerea,*) and three-fifths as large as our "quail" (partridge) (*ortyx virginianus,*) is very compactly built, with great speed in running, and a powerful and long continued flight, enabling it to cross large bodies of water in its migration. The bill is longer and more slender than in our *ortyx virginianus.* The color is brown, striped with reddish yellow on the upper parts of the body, the head is darker than the back, the throat reddish-brown, and the region of the crop reddish-yellow. A pale yellowish line passes from the base of the upper mandible over the eye and down the sides of the neck across the throat, where it is banded by two narrow dark brown lines. The blackish brown primary quills are spotted with reddish yellow in such a manner as to form stripes. The first quill has also a narrow yellow border. The reddish yellow tail feathers have white shafts, and are spotted with black at their edges. The length is 7½ inches, and expanse of wing 13 inches. The tail is 1¾ inches long. This is the male. In the female all these colors are comparatively indistinct.

The bird is very hardy. These have been three months in the packing crates, and none have been lost. All seem to be in a vigorous condition. As a food bird it is excellent, and in Europe esteemed a great delicacy. It lays well before the dog, and gives fine sport for the sportsman, and he who kills them on the wing must be quick and true. The species is very prolific, and, under favorable conditions, it is expected they will become one of the bird features of this locality. The nest is made on the ground, like the partridge, and fourteen or fifteen white eggs are deposited.

Poultry-Raising in France.

In the breeding and management of poultry for profit the French surpass all other nations in the world. There are two reasons for this: First, the small properties or holdings owned by the peasantry; and second, a quick eye to economy and profit in producing food supplies. The English manage differently, and instead of poultry they raise beef, mutton and pork, and buy many millions of eggs and fowls from their neighbors every year. Strange as it may seem there is more food raised in the poultry yards of France than in the stalls and pastures of England. There are very few great estates, as in England, and the land is divided up into small holdings, and owned by the occupants. On these very small holdings there is not room enough to raise cattle, swine and sheep for their flesh. Hence a small kind of live stock, requiring less room and giving quicker returns, must be selected, and poultry is chosen. This has been the case in France for many generations, and as "practice makes perfect," poultry keeping has there been reduced to a science. The amount of capital, labor and skill invested in the business is simply wonderful.

To Break up a Broody Hen.

A writer gives this method: "You inclose the hen in a coop (light or dark) and keep her there for three days and three nights. She must not have a particle of victuals or drink. When she emerges she will be so 'run mad' hungry as to banish all thoughts of her former intentions. No fear of starvation in this plan. I have practiced it for years and recommended it to hundreds. It is a sovereign cure. Several hens may be put together. One obstinate case in a hundred may occur. Then repeat the dose."

Old Hens.

A very nice dish may be made out of tough old hens by boiling them till they are quite tender in plenty of water. When they lack about half an hour of being done, make a nice biscuit dough, roll it thin, and lay it over the top of the boiling fowl. Boil fast till done. Lay the dumpling on one platter, the chicken on another; add milk, butter, and flour to the gravy left in the pot, enough to make a nice bowlful, which serve with the fowl and dumpling.

Guinea Fowls

Will keep all bugs and insects of every description off garden vines. They will not scratch like other fowls, or harm the most delicate plants.

LITERARY AND PERSONAL.

QUARTERLY REPORT of the Kansas State Board of Agriculture, for the quarter ending June 30, 1880, containing statistics relating to population, acreage of important crops, railroads, public lands, condition of crops, farm animals, meteorological data, &c., together with papers on summer and fall treatment of orchards and vineyards, and the growing of sorghum cane. By J. K. Hudson, secretary, Topeka, Kansas. G. W. Martin, Kansas Publishing House, 119 pages royal octavo, with complete index of subjects treated of; on beautiful white calendered paper and beautiful typography; a great credit to the young State issuing it. No such document as these quarterly reports are issued either by Congress or any of the individual States. They make annually a volume of about 475 pages, worthy of being bound in "morocco and gold," literally containing all within its scope that is worth knowing.

One of the most important features of the Second Quarterly Report of the State Board of Agriculture is the article on Growing Sorghum Cane in Kansas, which occupies over 30 pages of the volume. The paper opens with a statistical table showing the acreage by counties of 1880 compared with 1879, which is followed by the experience and recommendations of over 100 growers in various counties of the State. The value and importance of the crop will be a surprise to most readers. Prof. Popenoe, the entomologist of the Board, makes a very interesting report on the Web Worm, its habits and its transformations, which will greatly interest counties where farmers have suffered from the ravages of the pest. The report also contains meteorological data for the three months ending June 30th, and the usual full and varied information upon the staple crops, condition of farm animals, &c. The papers upon the Summer and Fall Treatment of Orchards and Vineyards, occupying over 20 pages, are particularly timely and of a practical character. Late information is also presented regarding location and price of the public lands, a list of the district and county fairs, and an extract from the Railroad Assessors' Report, showing the number of miles of railroad, and value in each county, &c., &c.

The statistical information given in the tables from the Assessors' Returns for 1880, of population, crops, fruit trees, farm-building erection, &c., will be found interesting to all readers.

The report may be had by addressing the Secretary, J. K. Hudson, Topeka, Kansas.

U. S. DEPARTMENT OF AGRICULTURE, special report, No. 24, upon the condition of crops for June and July, 1880. This is certainly a great improvement on the old plan, when we only heard from the Department once a year, and then only when half the succeeding year had passed away. In this connection we may also be permitted to notice the reply of Commissioner Wm. G. Le Due to Hon. Benjamin Le Fever, chairman of the sub-committee on agriculture of the House of Representatives, in which the Commissioner gives an able outline of the necessities of the Department over which he presides. Doubtless these wants of the Department will be deemed extravagant by many people—both in and out of Congress—there are always such on any question. But in view of the great importance of agriculture to the entire country, these demands are reasonable. We usually speak of *commerce*, *agriculture* and *manufactures* as furnishing the sinews of civilization, but destroy agriculture, and what becomes of commerce and manufactures, or even civilization itself?

THE AMERICAN GARDEN.—A quarterly illustrated journal, devoted to the gardening interests of America; only 25 cents a year; single number, 10 cents. Dr. F. M. Hexamer, editor. B. K. Bliss & Sons, publishers, No. 34 Barclay street, New York. This is a quarto of 12 pages, and the material, letter press and literary contents of a superior order. Its quality and cheapness ought to create a large space for it in the domain of agricultural and domestic literature and assure its success.

THE SUGAR BEET.—The third number of this excellent quarterly is now before us, and more than sustains the reputation elicited by its first number. As the price is only 50 cents a year, no co-operator in the sugar interest of our country can afford to be without it. Its "make up," in every respect, is "A No. 1," and the specialty to which it is devoted is most ably advocated and elaborated.

NEW SOUTHERN POULTRY JOURNAL, July, 1880, No. 7, Vol. 2 of this illustrated monthly 4to. has been received, and is a "man among men" in the interest of "Poultry and Pet Stock," to which its columns are devoted. Published by G. B. Duvall & Co., Louisville, Kentucky, at $1.00 per annum; single number, 10 cents. Twenty pages, including tinted covers, of practical chicken literature of great value to those engaged in chicken culture everywhere.

DESCRIPTIVE PRICE LIST OF STRAWBERRIES and other small fruits, offered for sale by Ellwanger & Barry, Mount Hope Nurseries, Rochester, New York, being No. 7 for summer and autumn of 1880, embracing the culture and management of strawberries, the soil and its preparation, season of transplanting, &c. Directions for garden and field culture, description of plants, shipping, advice to correspondents, and many other matters relating thereto, with handsome illustrations of the same. This is an old and reliable firm, one in which our patrons can place the most unqualified confidence.

NINTH ANNUAL REPORT of the State Entomologist, on the noxious and beneficial insects of the State of Illinois, by Cyrus Thomas, Ph. D., State Entomologist. Although, practically, this is the *ninth* report of the State Entomologist of Illinois, yet it is only the *fourth* report of Mr. Thomas. The *first* report was by the late B. D. Walsh; the *second*, *third*, *fourth* and *fifth* by Dr. LeBaron, and the *four* subsequent reports by Dr. Thomas. This numerical order, in consecutive series, has been recognized and habitually observed by Dr. Thomas himself, and time will only make its importance more manifest. The report itself is an octavo of 146 pages, including index; in paper covers, and is divided into three divisions, namely: *First*, insects infesting the cabbages; *second*, insects and other parasites affecting domestic animals; and, *third*, a manual of economic entomology, embracing a classification and description of the ACRIDDÆ (Grasshoppers) of Illinois; together with a reference to their injuries to vegetation, and climatic and other remedial agencies operating against them. These annual reports should be issued by all the States, because they constitute the only practical literature on entomology that is likely to ever be of any use to the farmer; and because in this form they can be more readily referred to than if the matter composing them is scattered through large and unwieldy quartos or folios, which, perhaps, are not preserved. Their information, however, is scarcely appreciated by those whom they are intended to benefit, and perhaps never will be; simply because their results cannot always be made as manifest as "buckwheat cakes and sausages."

THE SOUTHERN PLANTER AND FARMER.—Devoted to agriculture, horticulture, live stock and rural affairs. Edited by Rolfe Saunders, Richmond, Va., $1.00 a year in advance. This staunch journal has reached its forty-first year, and is "the oldest agricultural journal in the South," and we are happy to notice that its circulation and its influence are increasing—and to add, that it richly deserves it.

WE thankfully acknowledge the receipt of a copy of *Biological* and other notes on *Coccidæ*, by J. Duncan Putnam, Corresponding Secretary of the Davenport Academy of Natural Sciences (from the proceedings of the Davenport Academy of Natural Sciences, Vol. II.) This is a very elaborate paper of 54 pages, royal octavo, and two full-page plates, containing about 50 figures, illustrative of the anatomy, transformations and development of *Pulvinaria innumerabilis*, a short history and outline of which we had published in the *Farm Journal* just twenty-six years ago, under the generic name of *Coccus*. Science has accorded to us all the credit that may attach to having been the original describer of the insect; has suppressed all subsequent specific names, and adopted *ours;* not because it was the best or most appropriate, perhaps, but because it was the *first* in the series of time. Well, there are many things *like* this in the world, but we forbear making comparisons between them Mr. Putnam and his colaborers, by their patience and long perseverance, have certainly developed more out of the subject than we ever knew was in it, or perhaps ever should have known if left to our own resources. There is an entomological *conundrum* connected with the local history of this insect that is not easily solved. From 1852 (perhaps earlier) to the outbreak of the Rebellion, the Linden and Maple trees, as well as many of the grapevines, and other vegetation, were seriously infested by these insects, especially the first two named; but from that period down to the present time, their numbers gradually diminished—indeed, we have not seen one in this locality for five years. We are not aware that any particular remedy was applied, except that the County Commissioners felled half a dozen badly infested Linden trees that stood in front of the "New Court House" then being built in Lancaster. We are not sorry that they have gone, but when they return again (if ever) we shall avail ourselves of the advantages of the literature upon the subject that has appeared since our brief report.

ESTES & LAURIAT, of Washington street, Boston, announce the "*Ferns of North America*," in two large 4to. volumes, at $30.00 ($15.00 per volume,) with plates. Plants drawn and colored after nature by J. H. Ernestou. Text by Prof. D. C. Eaton, of Yale College, assisted by eminent naturalists. If there are any among our readers who desire the best publication upon this interesting branch of botany, that has yet appeared in America, we would advise them to get this one. If this work is really completed and on sale, we cannot understand how it is that those who subscribed for it from the beginning have not yet been furnished with the whole work. Or, is this announcement premature?

THE PITKIN INDEPENDENT.—A copy of this six-column folio (No. 3, Vol. 1, bearing date July 31, 1880,) has found its way to our editorial sanctum, and, all things considered, it looks to us business like. *Pitkin*, that two years ago, under the name of Quartzville, and about 15,000 feet above sea level, was a mere hamlet, now has a weekly newspaper, which in size and "make-up" will compare favorably with our oldest and largest dailies. Pitkin is one of the new mining centres in Gunnison county, Colorado, and already has its town ordinances and officers; its doctors, attorneys, and notaries; its dry goods, hardware and grocery stores; its tinsmiths, shoe stores and jewelers; its bankers, grain dealers and photographers; its hotels, saloons and cigar depots; its painters, decorators and printers; its Armstrong, Main and Holiday streets; its clothing stores, silver platers and harness-makers, and of course its *churches*, assay offices and liveries, and judging from the advertising patronage of its lively newspaper, we would like to know what it hasn't got that is worth having. God speed Pitkin in everything that can legitimately claim a God speed. As a matter of course it will have some things it ought not to have, but the march of intelligence and moral integrity in time will eliminate these. It is difficult for the conservative fogyism of the older States, to realize the progressive expansion of the new—the toils they have struggled with, the perils they have surmounted, and "amidst close pressing enemies how still undanted they have endured and dared." On account of its "plucky" and persevering denizens, among whom one near and dear to us has cast his lot, we feel more than an ordinary interest in its enterprises and its institutions. May it aim to be a "city set on a hill that cannot be hid." The *Independent* is a creditable specimen of frontier journalism."

MISCELLANEOUS.

The Fruit Evaporator.

Within a few years the evaporation of fruit by improved processes, under the stimulus of the current high prices for the product, has received much attention. American evaporated fruits have gained a great reputation in Europe, and now constitute an important item in commerce. The demand, market and price within the last year has added new interest and importance to the business.

Perhaps the most significant fact in this connection is, that simpler and cheaper, yet philosophical evaporators have been constructed, and are now going into use as an auxillary to the farmer and orchardist. Fruit growers should closely investigate and turn to account upon their own premises much, if not all, of the fruit that usually goes to waste or is sold at unremunerative prices. The fact that raisins are sold here for 10 cents per pound, after a carriage of thousands of miles, and evaporated pared peaches is worth 25 to 30 cents per pound, suggests at least investigation.

Seeds and Plants.

We would call the attention of those of our readers who contemplate purchasing seeds or plants during the coming season, to the advertisement of Peter Henderson & Co., New York, now appearing in our columns. Peter Henderson, the senior member of the firm, is known far and wide as a horticultural writer and authority. His books, "Gardening for Profit," "Practical Floriculture," and "Gardening for Pleasure," are now in the hands of thousands. The green-house establishment of this firm covers three acres in green-houses and employs upwards of fifty hands. Millions of plants are shipped by mail or express annually to every State and Territory. Their seed warehouse is the most extensive in the city of New York, and every order received is certain to be filled with goods of the best quality, and as they are producers as well as dealers, "everything for the garden" will be sold at low rates. Feb-3m

"Bo-Peep."

This exquisitely wrought steel plate engraving, by the well-known artist, J. A. J. Wilcox, from a painting by that world famous German artist, Meyer Von Bremen, is one of the most beautiful and artistic engravings ever published. A mother and her child are away from the dusty town for an afternoon's recreating in the "Sylvan Wild" of Germany; golden pages are added to life's book of "Happy Hours." It is a genuine steel engraving, and so excellent in subject and body that its possessor can never outgrow it—become he or she however æsthetic in art. Printed on 22x28 paper. Price $3.00. Published by R. H. Curran & Co., 22 School street, Boston, Mass. Apr-1t.

The Cooley Creamer.

This method of "deep-setting of milk" is coming into so general use, that at the recent dairy fair in New York, it was not shown as a "novelty," but took its place as a common and indispensable adjunct to the dairy. With a Cooley Creamer a dairyman is entirely independent of the weather, and his product is uniform at all times. It is in this, as well as in its convenience, that the Cooley process of setting milk commends itself to all who make butter.

From our foreign exchanges we infer that it has been quite extensively introduced into use in Great Britain.—*Albany Country Gentleman.* Feb-4tm.

Inventors, Take Notice.

To any of the readers of THE FARMER who desire a patent we would refer them to William R. Gerhart, Solicitor of Patents, at No. 34 North Duke street, (2d floor) Lancaster, Pa. He has opened communication with the Patent Office, at Washington, and is prepared to push claims with promptness and dispatch. Apr-1m

Ballard, Branch & Co.

In another column will be found the advertisement of Ballard, Branch & Co. Apr-1t

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.

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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 specialty of which he is so thorouhly 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.

JOHN A. HIESTAND,
No. 9 North Queen St., Lancaster, Pa.

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PENNSYLVANIA RAILROAD SCHEDULE.

Trains LEAVE the Depot in this city, as follows:

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*	2:40 a. m.	4:05 a. m.
Way Passenger†	5:00 a. m.	7:50 a. m.
Niagara Express	10:05 a. m.	11:20 a. m.
Hanover Accommodation	10:10 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy	11:05 a. m.	12:40 p. m.
No. 2 via Columbia	11:07 a. m.	12:55 p. m.
Sunday Mail	10:50 a. m.	12:40 p. m.
Fast Line*	2:10 p. m	3:25 p. m.
Frederick Accommodation	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom	5:45 p. m.	7:40 p. m.
Columbia Accommodation	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express	7:25 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.
Atlantic Express*	12:25 a. m.	3:00 a. m.
Philadelphia Express†	4:10 a. m.	7:00 a. m.
Fast Line*	5:20 a. m.	7:40 a. m.
Harrisburg Express	7:35 a. m.	10:00 a. m.
Columbia Accommodation	9.10 p. m.	12:0 p. m.
Pacific Express*	1:25 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*	5:20 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.

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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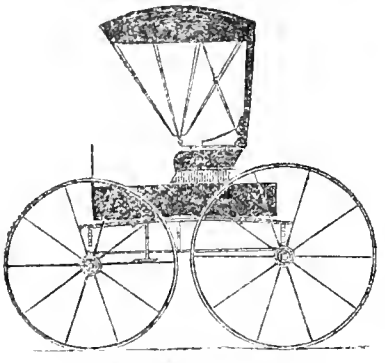

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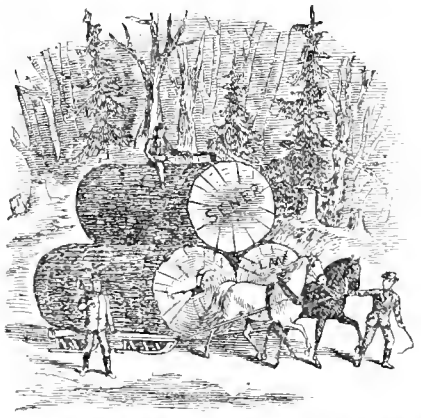

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Nov-1y

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor. LANCASTER, PA., SEPTEMBER, 1880. Vol. XII. No. 9.

EDITORIAL.

OUR COUNTY FAIR.

Before another issue of the FARMER, our county exhibition will have come and gone, and although many will naturally be absorbed in the larger pageantry at Fairmount Park, yet it cannot release them from the obligations which are due to their own local exhibition. Hundreds, yea thousands, will never see the State fair, and it is for these that the county association must cater. In large State exhibitions county and district lines become obliterated, and all are absorbed in the general mass. Individualism can only be made manifest in a local exhibition. It will not be wise to ignore individualisms, because they are the integral parts of the whole, and without which the whole could not exist. No community can ignore families, no family can ignore individuals, without at the same time disintegrating the social compact, and engendering lonely and demoralized isolations. We hope to see the pride of our county materially manifested on the 29th and 30th inst. and October 1st. An earlier day might have been better, but this is no excuse for non-participation as a whole. If we look over the long list of fairs to be holden throughout our land, we will find a large number of them occuring later than ours, indeed, the entire month of October will be occupied in State and county fairs. The time is propitious in this, that it is beyond the usual vicissitudes of the autumnal equinox.

PERSONAL ACKNOWLEDGMENT.

We acknowledge ourselves "brimfull" of gratitude to our esteemed friend and patron, Mr. M. D. Kendig, of Creswell, for a basket of lucious Susquehanna peaches. Any man who can select, carefully pack, and unselfishly donate a half bushel of such fruit, must realize that it is "more blessed to give than to receive," and that *we* should have been the object of so much consideration, only places our sense of personal unworthiness in conflict with those emotions of greatfulness which an appreciating recipient ought to feel. Aside from the excellence of the gift, and the generous motive that dictated it, we feel a pardonable pride in being a native of a domain in which nature so bountifully rewards the sons of toil. It illustrates not only what nature *can* do, but also what she *will* do, under intelligent human co-operation. An enclosure of trees bearing such golden fruit, far transcends in intrinsic value the famed orange groves of Florida. May our friend always be blest with such results in the field of husbandry, for well we know it cannot but enhance a veneration for that unseen power which is prior to nature, and in whom both nature and men "live and move, and have their being."

APOLOGETIC.

We beg leave to assure our esteemed correspondent, A. B. G., that in our literary notice of the bulletins of the department of agriculture, we had not the remotest intention of disparaging the predecessors of the present incumbents of that department. We alluded specifically to the olden time of that office, when the reports were only published once a year, and were circulated six months or more after they were due; forgetting for the moment the beginning of the new epoch, when they were sent out monthly or bimonthly, under Mr. Newton, of which we were well aware. We have always been in sympathy with the department, and have often noticed with regret the severe criticisms indulged in by the press upon its management, in which little regard was paid to the peculiar circumstances by which it was surrounded by congressional illiberality. At the same time, it must be apparent to all, that its present bulletins are a great improvement upon those which immediately preceded them. The sustaining encouragement of Congress in our humble opinion, has never been commensurate with the vast importance of the department to the agricultural interests of the country, an interest upon which hinges every other that relates to human civilization. Doubtless mistakes have been made, and errors have existed, but it seems to us that many of these were due to the attempt to haul on a wheelbarrow that which needed a six horse team and a Conestoga wagon. We deem the agricultural department of more importance to the country and the people than any other belonging to the government, not even excepting the department of State, the interior, and department of treasury. But the neglect of Congress is not nearly so discouraging as the ingratitude of the people, and especially those who do not *know* enough to exercise an intelligent judgment.

A BEAUTIFUL FUNGUS RESEMBLING WHITE CORAL.

Mr. Benj. A. Spindler, some days ago, brought me a beautiful large white fungus, which was obtained in the vicinity of Lancaster—if not within the city limits. I had never before noticed anything like it that I could call to my mind. When I first received it it measured over thirty inches in circumference, was trilobed, but the lobes were of different sizes—indeed the one greatly developed, and another small, apparently almost absorbed by the other two. It bore some resemblance to a cluster of pure white coral, with this difference, that the ends of the branches were divided into moderately long bristling filaments, almost as closely massed together as the hair on an animal. I had previously succeeded in drying and preserving "puff-balls" (*Lycoperdon*) and I hoped I might be able to succeed in drying this, but unfortunately I failed. It was perhaps too immature, and contained too great a quantity of water, and to make the matter worse, Mr. S. had immersed it for a time in water to keep it fresh. I sent a portion of it to Prof. W. G. Farlow, of Harvard College, Cambridge, Mass., the best authority on this subject in our country, and he informs me it is *Hydnum erinaceus* Fr.—nearly related to *Hydnum caput-medusæ*, but still distinct. At this writing it is becoming a dark brown in color, contracting and decaying, indeed, becoming offensive. It is growing a crop of parasitic fungi, which, if any of our microscopists desire to possess, they should avail themselves of the first opportunity after they read this, as it cannot be tolerated much longer in this warm weather.

A JUVENILE COLUMN.

We quote the following from a private communication, because we believe the esteemed writer would not hesitate a moment to endorse any feasable plan to carry into effect the object he so kindly suggests, notwithstanding what he has written may not have been intended for the public:

"Wife and self greatly admire the FARMER—its appearance, plan, size and contents; but think it lacks *one thing*—a department for the young; something to *attract* their attention, and win them to read the more serious and solid articles; something addressed to them *directly*—as urging them to gardening, flower planting and other light labors for *amusement*, which shall also profit and instruct."

A. B. G.

We entirely acquiesce in the above sentiment—have long since temporarily entertained a similar thought, but somehow, through a multitude of other thoughts and their attendant labors, this one has never been ultimated in formal act. We feel thankful, however, for this friendly suggestion, and hope it may be a sufficient stimulant to the readers of THE FARMER to induce them to contribute to such a department. We are satisfied that not sufficient is done by adults to encourage, through domestic precept and example, the young generations who must eventually take their places. Nothing would have a greater tendency to inculcate contentment in their homes and occupations, stimulate them to usefulness, and foster self-dependence. It is true, they might become selfish, but youth is the time to *acquire*, and in its acquisitions will be more or less stimulated by self; moreover, if its acquisitions reach beyond the sensuous plane into the mental and the moral, it will ultimately learn to subordinate the lower to the higher, especially if it should thoroughly study a well conducted youth's department in the FARMER or any other paper. But even in the FARMER *as it is*, there is much that might be utilized in domestic life, if the adults of our land were less under the "traditions of the elders," and did not so effectually ignore its teachings, merely because it is *written*. Still this cloud is gradually passing away, and the generations that are coming will doubtless be more inclined to mount the car of progress.

TRIFLES.

Blue-Bottle Flies.

"Three blue-bottle flies, says Linnæus, will devour a horse as soon as a lion could do it. The statement is, no doubt, somewhat of an exaggeration, but it is not so far over the mark as it may be supposed to be. One fly, it has been stated, will produce 20,000 eggs, and no sooner are the maggots hatched from them than they set to work with such vigor that in twenty-four hours they will increase in weight some 206 times. In about three weeks every one of them may become a perfect fly, half of them, perhaps, females, each capable of depositing another 20,000 eggs in any dead rat or "high" leg of mutton that threatens to breed pestilence in the air."

Trifling as an isolated "blue-bottle" fly is, still it is a power in the land, when under the influence of its normal relations. Many people have a contempt for these objects of nature's realm, and yet if not at all points thoroughly guarded or defended, a single blue-bottle fly could reduce them into a mere "grease spot," in far less than three weeks. It might not be a pleasant thing to have a blue-bottle fly buzzing around our beefsteak, our veal cutlets, our mutton-chops or our speckled trout, nevertheless, if it were not for that fly and his cogeners, this might be a very unhealthy country to live in, unless we could immediately bury all decaying animal and vegetable matter far under ground. The odor of a fly-infested carcass is by no means an agreeable one, but it is almost "Araby the blest" when compared with the stench arising from a decaying carcass where no flies are present. On the whole then the blue-bottle fly is of some *use* in the world, however despicable he may be, or whatever his *abuses* may amount to. The following paragraph tells a different tale.

Insects.

"There are about thirty species of insects which subsist on our garden vegetables. The grape vine has about fifty insect enemies; the

apple tree seventy-five; the different shade trees have over a hundred; wheat, barley and oats, fifty. The estimated annual destruction of property by insects in the United States is as high as $400,000,000. A great portion of this loss might be prevented by the preservation of different kinds of birds."

These insects, taken singly, are also mere trifles, and those who study and explore them are following a trifling pursuit, in the estimation of those who only recognize "big things," but the aggregated damage of these trifles throws the wealth of the greatest of them entirely into the shade. Birds no doubt save much of this loss, how much perhaps no one could say, but efficient as birds may be as insect scavengers, there is an insect, according to the following paragraph, that turns the table on the birds. According to the view of many, the introduction of such spiders might be allowed to victimize the sparrows.

The Bird-Killing Spider.

"The bird-killing spider, a monster from Bahia, with a hairy body three inches long and terrible claws, has recently been received in the Zoological Gardens, in London. He hides under a bit of bark, from which he emerges to kill his prey—a mouse, or a bird, or he will eat a dozen ship cockroaches in an hour. Unwarned by the fate of their comrades, the cockroaches walk up to the great insect to stare at him; and are caught up and devoured, one after the other, as the followers of Ulysses by the Cyclops. The animal has his uses, and will at least serve to reduce the number of the cockroaches by which the Gardens are infested."

Red Ants.

WASHINGTON, D. C., Aug., 1880.

"Wife put a lump of camphor gum into a glass jar, and placed the jar in a closet infested with these ants. They disappeared, and have not appeared since, though the camphor was removed after about six months. This was years ago. The closet was and is our depository for sugar, canned fruits, syrup, &c. We therefore set down camphor as a specific for red ants."—*A. B. G.*

TOBACCO PESTS, No. 2.

The Result of a Critical Examination and Study of Various Specimens—Their Habits, as Well as Their Methods of Destroying Crops.

In addition to the insects named in my first paper upon this subject, I subsequently discovered a *fourth* species amongst the early infestors of the tobacco plants, in the form of a very small Hemipterous insect—somewhat allied to the "chinch-bug" that so destructively infests the corn and wheat crops of the Western States. But before I could find time to examine them specifically and describe them, the specimens were lost, and the opportunity passed away, nor did I succeed in obtaining fresh specimens. They were black in color, except the membranaceous terminal portion of the upper wings—or wing covers—and scarcely the sixteenth of an inch in length. Of course these insects, appearing so early in the season, must have hibernated during the previous winter. Indeed, I have often, in the months of March and April, when the weather was unusually warm, found *Scolidera*, and other minute species of HEMIPTERA, under stones and other shelters in the open fields, and these, though smaller, bore a general resemblance to them. These little insects cannot *eat* the tobacco leaves, as mandibulated insects do, but being provided with a sharp bill or piercing instrument, they penetrate the leaves like an aphid does and exhaust the plant of its sap, thereby enervating it, or killing it outright.

On June 12, 1880, Mr. Daniel Lippold, of Salunga, sent me some larvæ which he found depredating upon his tobacco plants. These larvæ were confined in two tin boxes. One box contained half a dozen "cutworms," from which I bred the moths. Although these "cutworms" differed somewhat in color, from a gray to nearly black, yet they were about the same in size and peculiarity of making (where distinctive marks were visible) and all had a repulsive, greasy look, as though they had been taken out of liquid grease; and I have therefore no doubt they were the same species. I have captured cutworms in my own garden, cutting off cabbages, redbeets, corn, beans and other vegetation, and they exhibited about the same variety in color, marking and greasy look, but on breeding the moths from them they appeared to be the same, differing only in shade of coloring. These may then be regarded as the "common cutworm," or as Prof. Riley has appropriately named them, the "greasy cutworm" (*Agrotis telifera*,) which certainly "fills the bill" better than "black," "gray" or "mottled cutworms."

These pests do not, in an honorable way, come out and eat as much of the leaf of the plants they infest as they need, and then retire, but they usually cut off the plants just beneath the surface of the soil, without eating the tops at all. When they are disturbed they immediately coil themselves up into a ring as near as they possibly can. They do not like the sunlight, and hence during the day they are buried in the loose soil, in the vicinity of the plant. It is said that this worm is almost a cosmopolitan, having been found in England, on the Continent of Europe, in Japan, Australia, as well as nearly all of North America. These worms, when they came into my possession, were an inch and a half long, and within three days thereafter they buried themselves beneath the soil, and began to pupate. The pupa is three-quarters of an inch in length, shiny, or glossy light-brown in color, the anterior margins of the segments dark-brown. The anal segment is armed with two very small spines or points, by the assistance of which it pushes itself towards the surface about the time the moth is evolved.

On the 7th of July the moths appeared. This moth is commonly called the "Lance Rustic," from the dark brown lance-shaped spots on the anterior wings, which are a light brown in color. The hind wings are lustrous and whitish in color, with a grayish margin. The antennæ of the females are filamental or thread-like; but in the males, along the inner margin, near the base, they are more or less pectinated. The body of the largest specimens is three-fourths of an inch in length, and the wings expand one and five-eighths of an inch from tip to tip. I have seen scores of these insects captured by setting bottle-traps for them, containing sweetened water. Many fly into windows, where a light is exposed, and "come to grief" by flying into it or against a glass globe or chimney protecting it. The moth is hidden during bright days and comes forth to court and feed at night, although I have frequently seen them on flowering plants, feeding on nectar, during cloudy weather. They are remarkably fond of sweet fluids, and for that reason might easily be decoyed into traps. *Cut worms* are largely preyed upon by Hymipterous and other parasites. There is no better or safer remedy than hand-picking while they are yet in the larva state, and discriminating in favor of the parasites when seen and known. These cut worms, in various stages of development, may be found in the earth during the entire winter, and so long as they remain too torpid to feed they remain in *statu quo* until the return of genial spring. This accounts for their early appearance, and their advanced physical condition so early in the season. These are doubtless the remains of a second or third brood of the previous season.

During the advent of the army worm in Manheim township, in the month of June last, Mr. George Shreiner, a very intelligent and respectable farmer of that township, sent me about a dozen of these worms, which he found preying upon his young tobacco plants, contiguous to a wheat field that was badly infested by them. On comparison I found them identical with those he had previously sent me from said wheat field. The wheat had rapidly ripened before the worms had matured their larval condition, and they "finished out" on the tobacco plant. These also produced the true "Owlet"—*Leucania unipuncta*. In other localities they attacked the oats, corn and timothy when the wheat became too ripe. Whether they will ever make tobacco a first choice or habitually prey upon it, is a matter for the future to develop. The army worm may, therefore, be regarded as a possible, if not a probable, enemy of the tobacco plant. Other insects have to my knowledge made a change in their habits, and have become infesters of tobacco within the last two years, of which I shall have something to say in a future paper. For further information in regard to the "army-worm," in the category of tobacco enemies, the natural enemies to which it is exposed, and the artificial remedies which have been employed against it, the reader is referred to the July and August numbers of THE LANCASTER FARMER. If they hey have not got them they can easily obtain them at a small cost.

On the 17th of June last, Mr. Homsher, of Strasburg, brought me a number of small black beetles, which he alleged he found on and under the leaves of his young tobacco plants, and although he could not positively say that he saw them eating the tobacco leaves, yet, inasmuch as they were there in considerable numbers, he was anxious to know what their purpose was there. These little beetles are five millimeters in length, and nearly two in breadth; convexed and oblong in form, thorax slightly punctured, and the elytrons or wing cover longitudinally striated; antennæ laminated at the end, the laminations opening and closing like a kind of fan. The punctures on the thorax are hardly visible to the naked eye, and the stria or corrugations of the wing-covers are also barely visible, and the whole is a shiny black. They are a species of *Aphodius*, belonging to the family *Scrabidæ*, and the section *Lamellicornia*. In short, they are "Dung-beetles" and live in and feed on dung, and if they were in the tobacco field for the purpose of "chewing tobacco" (which doubtless some people may regard as filthy a habit as chewing dung) they have made a wide departure from their normal habit. There are about one hundred species of *Aphodius* and allied genera, all very similar in form and habits, and most of them varying little in size—none of them being very conspicuous in size. They appear to be the *striga-tus*, of Say, and it is barely possible that like many other Lamellicorn beetles, (although apparently very remotely,) they may become sufficiently demoralized to feed on the tobacco plant. Still I hardly think it probable. It is more likely that they emerged from the pupal form in the soil of that field, and had not yet found their accustomed element in which they prepare the perpetuation of their species.

There is a remarkable uniformity in the larvæ of Lamellicornia, and those of the Aphodians which are *known* do not differ materially from the general form. They are all bent as if strung on a fish hook; soft, wrinkled, of a whitish color, and the anal segments generally enlarged. The adults, when not on the wing, are usually found in dung, and often on its removal the earth beneath it will be found perforated, evidently the apertures in which they bury their eggs, and a portion of the dung for their young to feed upon after their exclusion from the eggs. Although I have seen ten thousands of these insects in dung I have never once seen their larvæ there, from which we may infer that their larval period is passed in the soil. How many broods there are, or whether any brood survives the season, is perhaps not clearly known. This much I know, that I have found the adult insect flying abroad as late as Nov., and as early as March, on unseasonably warm, sunny days. Although many of the *Melolonthons*, another family of the *Lamellicornia*, are destructive to the

bloom, the foliage and the fruit of trees, shrubs and plants, yet the *Scarabeans*, which includes the *Aphodians*, never are, and I make this record because, when we know that which is *not*, we have made one step towards that which *is*.

DO BEES INJURE FRUIT?

A Question that is to the Point—The Bee Family—They do not Sting, but can Cut Fruit.

"This is a question frequently asked, and when the answers are given they do not always agree. A resident of North Duke street don't care for finely spun theories about this subject, for he is fully convinced by daily observation that bees do hurt the fruit. Upon his premises they have injured to a great extent both his grape and peach crops, and they were the Italian bees, too."

Every year during the last decade, the question of bees injuring fruit becomes one of animated discussion, and continues such, as long as the bees and the fruit continue, and then nothing is heard of it again until the following season. The foregoing paragraph is quoted from the columns of the *Examiner* of the 30th of August, and although many others of a similar character have appeared in different papers, yet as they did not generally state the case so distinctly as this, we did not deem them sufficiently explicit as a text "Do bees hurt (or injure) the fruit?" is not an ambiguous question, and will not admit of an ambiguous answer—it is immediately to the point. "Do bees *sting* fruit?" according to the popular and most obvious understanding of a bee sting, admits of a qualified, if not of an apparently caviling answer. What is the ostensible purpose of a bee, in stinging? Bees, like wasps and hornets, sting in self-defense, but that is not all. They become angered, exasperated, enraged and sting aggressively; but it is questionable whether they ever sting without, for some cause, having been previously exasperated. A bee, a hornet, or a yellow-jacket will enter your open window, alight upon your table, invade your sugar bowl, your fruit dish, or your molasses cup and never once think of stinging you, even if they should alight on your sugar-bedaubed hands; but attempt to forcibly retain or restrain one of them, and he will sting you in a "jiffy." Why? Because you assail him, and he defends himself—you exasperate him, and he avenges himself. A bee would be no more likely to *sting* a grape, an apple, a pear, or a peach, than it would a board, a stone, an iron wedge, or an earthen pot. Then what *would* it do? That might depend on circumstances, but prior to that, is, perhaps, the question what *could* it do?

To use a grammar term, let us parse the bee, in order to get at its position in scientific classification, and its relation to other insects to which it is allied generically. It belongs to the order Hymenoptera, which means *membrane-winged* insects; subsection Mellifera, honey gatherers; family Apiariaæ, from *Apis*, a bee; Genus, *Apis*; species, *mellifica*, from honey. Among other characteristics, the order Hymenoptera is distinguished by its subjects being provided with a pair of *Mandibles*, which means jaws; a pair of *Maxillæ*, auxiliary feeding members, a *labrum*, or upper lip; a *labium* or under lip, which is elongated, and, together with the *Maxillæ*, forms a kind of tongue, or sucker, capable of extension and contraction, and is employed in collecting honey from flowers, or wherever else it may be found. Bees, in common with all the subjects belonging to this order, possess these members, and some of them—especially those employed in collecting honey—in a more perfect degree than any of their cogeners. From the foregoing it will be observed that bees are mandibulated insects—they have jaws, and in all insects that are provided with jaws, all their cutting and boring is done with their jaws—even the *curculios* cut through the skins of the apples, peaches and plums with their jaws—they have no sting, and yet it is erroneously said "they sting the fruit." It is true, there is a family of Hymenopterous insects, some of the species of which have their stings, or ovipositors modified into a rasp or saw, for the purpose of making incisions, into which they deposit their eggs, but their jaws are still more formidable, and they use them more effectually.

To judge what the bee is likely to be capable of doing we will cite some of the characteristics of his cogeners of the same family. The genus *Bombus*, which embraces the Humble-bees (or "Bumble-bees" as they are more commonly called,) are Apiariæ, and their mandibular power is very apparent—to me at least—for many a one has cut his way through the walls of a trumpet flower, in which I had trapped him. The genus *Xylocopa*, wood-borers, have extraordinary mandibular power, for it is with their jaws they cut those long galleries in dry pine and other woods, and if these galleries are minutely examined it will be perceived that their instruments must be in good cutting order. The genus *Megachile* comprises the leaf-cutting bees, and anyone who has observed these insects cutting circular pieces out of their rose-leaves, and the facility with which it is accomplished, must be convinced of their mandibular power, for their jaws are their sole cutting instruments. The genus *Osmia*, of the same family, includes the Mason-bees. They detach and scrape up grains of sand with their jaws, and with these and a mucous fluid which they void, they construct almost imperishable cells in the crevices of walls. The genus *Andrena* resembles the hive-bee, but is much smaller; they dig holes into the hard ground and construct cells therein, and this work is done with their jaws. The genera *Cœlioxys* and *Nomada*, belonging to this family, are a kind of loafers and make no nests of their own, but lay their eggs in the nests of other bees, especially in the nests of *Andrena*. Now, these are the generic allies of our honey bees, and they are very similar to them in organic structure, and if it be true, that "tell me who your company is, and I'll tell you what you are;" their character is at least suspicious. Still, although we may have a right to conclude that bees have sufficient mandibular power to cut the skin of a thoroughly ripe grape, plum, peach or apple, we may not have the right to infer that they possess that power to the same extent that their cogeners do.

The testimony against them in this respect is too general and too respectable to be ignored by their zealous friends, and yet it is possible that much of this testimony may be superficial. For nearly thirty years I have been growing grapes—Isabellas, Clintons, Concords, Hartford Prolifics, Marthas and Delawares, and yet I cannot say that during all that time I ever saw a bee in the *act* of cutting the skins of any of them. Bees were about nearly all the time after the fruit ripened, and where there was a ruptured or a partially decayed one, the bees would be busily engaged extracting all the nectar they could from them, but I never saw them puncture or cut the skin of one. But this by by no means proves that they *could* not do so, or *would* not do so elsewhere, or under other circumstances. I have enclosed bees in the flowers of the "Morning-Glory," and in many instances I have known them to cut their way out. They have not always done so, but they have done it often enough to show that they *can* do it. On one occasion last summer, in company with Mr. Stauffer, we watched a bee nearly half an hour, apparently girdling the leaf stem of a hawthorn, and when driven away we found it had made a very sensible impression upon it—sufficient at least to break the skin of a grape or peach when fully ripe.

But, taken all together, is the proportion of grapes and other fruits destroyed by bees, as compared with the entire bulk of these fruits, sufficient in magnitude to warrant a general destruction of the bees, or even to justify all the complaints that are made about them? A man who has an Apiary must surely be compensated in honey beyond anything he will be able to realize out of his grape juice, therefore *his* complaints are selfish and unreasonable, and he ought to be ashamed to make them. Of course it is not so pleasant to those who have *no* bees and whose grapes fall a prey to the bees of their neighbors; and in this connection it is questionable whether it can be considered a fair thing for people—in cities and towns especially—to keep large stocks of bees who do not furnish the wherewith to feed them. It is not fair for their bees to be constantly trespassing upon the premises of their neighbors. Under any circumstances the fault is not with the bees. True to the instincts of their nature they will be gathering and storing up honey and wax, and man avails himself of the benefits of their labors. These complaints against bees destroying grapes and other fruit did not exist forty, thirty, or even twenty years ago, to one-twentieth the extent that they do now. For more than fifty years the trees, shrubs and plants from which bees gathered honey, have been decreasing in number, and apiculture, all over the country, has been increasing. The bees are here, not of their own accord, but were brought here, and every means applied to make them increase in number and efficiency, with perhaps little general regard paid to honey-bearing plants. Largely imbued with the instinct of industry they *will not* be idle, and hence they *will* gather honey wherever they can find it—out of flowers if they can, but out of grapes, peaches, pears, plums and apples if they must. Go to any cider or wine-press at the proper season and you will find thousands of "busy bees" pursuing their noble occupation. Go to any bearing apple or peach orchard, where decayed, cracked, or worthless fruit is permitted to lie on the ground, and you find the bees also there. Go to any sugar and molasses warehouses or grocery store, and you will find them in goodly numbers there. Go to any private family that makes their own apple-butter and cans their own fruit, and you will find it the same. It is life or death with them and they can't help it. The equilibrium of nature is destroyed, and they are thrown back upon whatever resources may present themselves to them. Perhaps there are few people who grow grapes that would be unwilling to partition off a liberal quantity to the bees; but they are like the restless adventurers of the far West, who disregard the rights of "reservation"—they will trespass—and to make matters still worse, it is said they will pass from one cluster of grapes to another, damaging many without wholly consuming any. If people will not keep their bees at home we must "grin and bear." It would be cruel to resort to slaughter.

THE BI-CENTENNIAL OF PENNSYLVANIA.

The year 1882 will complete the second century since the founding of our Commonwealth by William Penn; and it is desirable that we shall adopt measures in time to secure a proper celebration of this event. A society has been organized for this purpose under the title of the Bi-Centennial Association of Pennsylvania, and at its second meeting the following appeal to the citizens of the State was presented by the President, and ordered to be placed on the minutes:—

"The first centennial of the foundation of Pennsylvania by William Penn took place just at the close of the American Revolution. The British had evacuated Savannah on the 11th of July, 1782. This was followed by the evacuation of Charleston on the 11th of December of the same year, and on the previous 30th of November a preliminary treaty of peace between the Colonies and Great Britain was signed. The preparations for reconciliation, reconstruction, for a new National Constitution, and for the first Presidential election, called for so much general joy and concentrated co-operation, that our ancestors had no time to indulge in State organizations

or individual felicities. Benjamin Franklin was in France, and although afterwards Governor of Pennsylvania, and participating in the convention which framed the National Constitution, he died in Philadelphia on the 17th of April, 1790, in the midst of the excitement succeeding General Washington's first election to the Presidency, in 1789.

"The population of Philadelphia in 1782 was about 35,000; of Boston, 14,000; of New York, 21,000, and there was really no organized Western country. St. Louis was a village, Cincinnati and Chicago unknown, New Orleans in possession of the French, and all that great region now covered and controlled by the influence of the American Government divided between the Indians, the Spaniards and the French.

"The second centennial of the foundation or settlement of Pennsylvania, which occurs late in the autumn of 1882, is the proper period upon which to restore and to commemorate the events of the last two hundred years. And the organization we propose is intended as a simple preparation for such a recognition of these events as will gratefully emphasize past development, and make a practice and a guide for the future. In this pleasing duty all interests can participate; happily much has been done already by patriotic sagacity, benevolence, and generosity, and our province may be rendered comparatively easy by the fact that only a single work will be entrusted to us. Yet this single work will include many various considerations; first of these will be the classification of general history, including the annals of the city of Philadelphia itself, and all the various counties which entered into the first proprietary administration.

"It is the peculiarity of new England that State gratitude inspires a series of most careful county records. Like Old England, where there is hardly a shire that has not its antiquary, its poet, its biographer, and its statistician, nearly every New England town has a literature of its own, and doubtless to this characteristic the country at large is indebted for that wonderful superiority which entitles our great Eastern States to the appellation of 'the schoolhouse of the continent.' In Revolutionary reminiscences Boston is singularly fortunate, but not more so than Philadelphia. New York is likewise rich in her organized Revolutionary incidents, but not so much as Philadelphia. It is to prove these assertions, to digest all the concentrated and authoritative data of the past, to dissipate the mists of tradition, to clarify our just claims to consideration, to show our leadership in the days that tried men's souls, to distinguish the individual men and historic families of this vicinity and the neighboring counties, and at the same time trace the progress of the last two hundred years, so that the present and the past may be brought together in thoughtful and in useful contrast, that the Bi-Centennial Association of the State of Pennsylvania has been formed.

"Many interesting duties will come into the general plan. Not the least of them will be the recital of the interesting story of the early life of William Penn in England, his comparatively brief residence in this vicinity, and the romantic events of his career before he died. Around his character, at once so peaceful, so exemplary, and so fruitful, more than one aspersion has been permitted to settle, and it will be our pleasant task, not only to clear away these misrepresentations, but to present him and his example to future generations as the finest example of individual purity, perseverance, moral courage, republican administration, supreme toleration, and unselfish magnanimity, of ancient or modern times.

"In this interesting undertaking we cheerfully invoke the hearty co-operation of all classes and parties in this Commonwealth."

In former times, all public demonstrations intended to commemorate great events in the history of a community, were of a military or religious character; more recently, it has been deemed becoming to exhibit the progress which has been made in those arts which tend to promote the intelligence, convenience, comfort and refinement of the people; and such an exhibition is most appropriate, when the observance is intended to honor the memory of those who composed the little colony which, "by deeds of peace," laid the foundation of a prosperous commonwealth, and established, for the first time in the world's history, real freedom of opinion and worship; not the *toleration* which, as a favor, permitted men to enjoy their views and faith, but the *right* to freedom of thought and religious ceremonies, as a civil principle.

The magnificent building erected for the Exposition, which made the chief feature in our celebration of the Centennial of our Independence, with the collection of the products of the useful arts, and the experience gained by that most successful effort, will enable us to make a superb display of the skill and industry of our country, at comparatively small expense; and, consequently, we can give more attention to other attractions, and the things needed to afford gratification to those who will visit the city to observe, or to take part in the ceremonies. We have the grandest park owned by any city on our continent; its magnificent drives, its beautiful lawns, its primitive sylvan shades so grateful in the heat of summer, its pleasant variety of hill and dale, its interesting Zoological Garden, the Memorial Hall with its treasures of art, the elegant Horticultural Hall with its instructive display of rare plants, the spacious grounds for athletic and equestrian sports, the romantic Schuylkill, affording the most desirable facilities for boating contests, and the many artistic adornments of our great pleasure ground, make it the most delightful place of recreation in this country. Our city also has many institutions of a scientific, literary and artistic character, of great interest to all intelligent people; and it is well supplied with every desirable luxury.

Our aim is to make known to the people of the whole country what Pennsylvania and Philadelphia really are, and the progress which they have made in the two centuries of their existence.

An association has been formed, which will carefully consider every suggestion which may be made with a view to increase the attractions of the city, and opening communication with organizations and persons in every part of the State and vicinity, in order to arouse the people to an appreciation of the occasion we propose to celebrate. We should have a Bi-Centennial club in every town and village; and inasmuch as the result of industrial education will form an important feature of our demonstration, the boys and girls, as well as the older persons, should be induced to make efforts to produce something which will show skill, talent and intelligence.

Pennsylvania which was the youngest of the "Thirteen" colonies which united to achieve Independence, is now the second State of the Federal Union in population, the first in the development of material resources, it was the first to open a highway to the Ohio, the chief in productive industries, the first to construct an "iron way," which furnishes fuel to other States, and power to drive their machinery, which gives light to distant nations; whose career was begun by a treaty with unlettered aborigines, which "was not sealed by an oath, and was never broken;" which was the home of Oliver Evans, Rittenhouse, Benjamin West, Fitch, Fulton, Merrick and Baldwin, and which offers free education to every youth in the community, has in its history enough to excite an honorable pride in the bosom of every citizen, and a desire to do honor to its founder.

Philadelphia, the youngest of the great cities of the Atlantic slope, which is now second in population, but first in extent and capability of expansion, the great centre of industrial enterprise, the "City of Homes," long famous for the health and prosperity of its inhabitants, and the abundant supply of all the good things which make life pleasant, whose scientific and educational institutions have a reputation beyond the limits of our Union; in which the first Congress determined upon the freedom of our Republic, assembled, in which the Declaration of Independence was uttered, in which the Constitution of the United States was adopted, and in which Washington's Farewell Address was delivered; in which Franklin discovered the identity of electricity and lightning; Godfrey contrived the nautical quadrant; Dr. Hare invented the oxyhydrogen blow-pipe, which has taken the lead in steamship construction on this side of the ocean; and which has the only line of steamers trading to Europe which carries the American flag; certainly is sufficiently rich in events which mark the progress of enlightenment, to arouse a warm and earnest feeling of patriotism in the heart of every dweller in Penn's great city of "Brotherly Love."

The year 1882 is also the one hundred and fiftieth anniversary of the birth of Washington; and inasmuch as his history is intimately connected with that of Pennsylvania, it will be most proper to celebrate it at the same time.

Associations of ladies will take part in the celebration of our two hundredth anniversary; and a "Cadet Order of the Bi-Centennial of William Penn in America" is about to be instituted.

The terms of membership are an entrance fee of one dollar, and an annual contribution of two dollars.

Those who pay five dollars will be placed on the list of "Permanent Members," and will not be required to make further contributions.

It is expected that public-spirited citizens will not wait to be urged to take part in this movement. The time for preparation will be none too long.

For more particular information address

J. T. STAVELY, or J. W. BURNS,
Treasurer, *Corresponding Sec'y*,
Nos. 237-9 Dock-St., Philadelphia.

QUERIES AND ANSWERS.

SADDLE MOTH.

SALISBURY, N. C., August 15, 1880.

DR. S. S. RATHVON—*Dear Sir:* I send you something. What it is I know not, but while examining the leaves of a young May cherry tree it stung me in the second finger, between the knuckle-bone and the first joint. The sting was sharp and somewhat painful. I immediately took the wrapper from a cigar I was smoking when stung, and wrapped it around my finger, and in exactly one-half hour the pain had left me, and the only trace left of the sting was a dark pink spot, about the size of a small three-cent piece. I carried it two squares and met a colored man on the way, who said it was a "saddle bug;" that it could sting "all over," and that the sting of it was rank poison. I had never seen such a bug, nor heard or read of a "saddle bug." Would like to know its common and technical names, if not any trouble to you to give them.

I have a German book, printed in 1761, the title of it is, "Des Landsmans Advocate," Philadelphia. Gedruckt by Henrich Miller, in der Sweyten strasse, fur den Berfasser, 1761. I cannot even read German, but am satisfied that the title of it is "The Countryman's Adviser." If you desire I will mail it to you for your inspection. Answer in THE LANCASTER FARMER.—*Respectfully, Martin Richwine.*

Any news from an old native of Lancaster county is of interest to its present local residents; and the longer they have been absent from the "Fatherland," and the farther away from its borders they may have temporarily or permanently settled themselves, the more interesting, especially when we have the assurance that they are still in sympathy with the "dear old home."

The "something" which you enclosed in your letter was "smashed as flat as a pancake;" nevertheless, it is the best preservation of an insect *larva*, and its food-plant we have ever seen, and the result thus unconsciously developed, is very suggestive in devising means for a similar end on future occasions. It is far superior to a picture, and

involves no doubt as to its identification. The "colored man" you met was right, except in calling it a "bug." The *family* to which it belongs are called "Hag-moths," but this speccies is called the "saddle-moth," from its resemblance to an old-fashioned saddle, and it does "sting all over." Every bristle on it is a barbed tube, through which it injects into the wound it makes an active poison, and, although perhaps not fatal to human life, yet it produces an unpleasant, and sometimes painful irritation, or inflammation. The technical name of this species is *Empretia Stimulea*, and it belongs to the family LAMICODIDÆ; section HETEROCERA, order LEPIDOPTERA. This is, however, only the larval form of the insect, which spins itself in a smooth spherical cocoon, about the size of a marrow-fat pea, and in the summer following it evolves a small, but robust moth. The body of the moth, including its bushy tail, is half an inch long, and it is one inch across its expanded wings. The colors are reddish brown, green and dark brown. The anterior feet of the larva are very small, and it is entirely destitute of the characteristic prolegs of Lepidopterous larva, its locomotion being accomplished by the longitudinal contraction and expansion of its abdominal segments. It is an almost omniverous feeder, and we have found it on apple, pear, quince, plum, cherry, corn, apricot, cabbage, roses and various other species of vegetation (except the peach). It is also a cosmopolitan, so far as our Union constitutes the world, occurring from Massachusetts to California, and from Maine to Texas.

In relation to your ancient German book, and the political information of the past, which you desire, we will include it in a special communication, agreeably to your request, as soon as we can elaborate it. Your translation of "Des Landsmans Advocate" is perhaps hardly correct, unless the latter term means different in German from what it does in English. An advocate is a supplicator—a pleader, rather than an "adviser."

A BUTTERFLY.

The following correspondence will explain itself:

QUARRYVILLE, August 23, 1880.

DR. S. S. RATHVON—*Sir:* I send you a butterfly caught by Benj. F. Ferguson, near Pusseyville, which, I think, is something rare. If so, please answer through THE FARMER, and oblige, *yours, truly, R. C. Edwards.*

Dear Sir: Your "butterfly" was duly received and turned out to be "moth;" and, not because it is "rare," but because you think it is, and therefore seem to be in blissful ignorance of its character, I deem it worth while to say something on the subject.

This moth (*Macrosilla 5-maculata,*) commonly called the "Five Spotted Sphinx," "Hawkmoth" and "Humming-bird Moth," is the parent of the green "Hornworm," which, about this season of the year so seriously infests tobacco plants. There are two species of this insect that seem to be partial to the tobacco plant, but they also occasionally prey upon the tomato and potato; the one above named and the "Carolina Sphinx" (*Macrosilla Carolina.*) The latter is a Southern species, and the former a Northern species, but we, occupying intermediate or overlapping territory, have therefore both species.

These moths usually remain quiet or concealed during the day, and when their wings are closed they are inconspicuous, and may be sitting on the bark of a tree or old gray wall, or fence, and not be seen. But when evening approaches they take wing and fly to the various kinds of trumpet flowers, especially to the "Jamestown Weed," and, poised on their wings like a humming bird, they suck the nectar from the flowers and then go forth to the tobacco fields to deposit their eggs on the plant, which, in due time, are hatched, and from which the destructive worms are in time developed. These habits are, and ought to be, well known to tobacco growers, and also suggest means for the destruction of the moths. Some introduce poison into the flowers; some station themselves near the plant they visit, and strike them down with paddles, and others use various kinds of traps into which the moths are decoyed and are thus destroyed. Mr. Gibble, of Mount Joy, has invented a trap that seems to answer the purpose very well. The order LEPIDOPTERA (mealy-winged insects) is usually divided into three sections, viz: the *Diurnia*, or day flyers (which includes the butterflies;) the *Nocturnia* or night flyers (including the larger number of the moths,) and the *Crepuscularia*, or twilight flyers (which includes the hawk and humming bird moths,) and the species under consideration belongs to the last named division.

A female moth of this species will deposit during the season from 600 to 1,000 eggs, each of which may be capable of producing a worm. The tobacco grower will, therefore, perceive what an immense amount of labor he may save, if he can contrive to kill the females before they have deposited any eggs. The eggs are not all deposited at one time, nor in one place, but here and there at intervals, as long as any remain.

"GREEN WORM WITH HORNS."

SALISBURY, N. C., Aug. 30, 1880.

DR. S. S. RATHVON, Lancaster, Pa.—*Dear Sir:* I mailed you this day a box containing a green worm with horns. I call it a "worm" because I know no other name for it. Please give the common and the technical names for it through the columns of THE FARMER. This worm was found by my two little girls, under a persimmon tree on the ground. I also include its nest.—*Martin Richwine.*

Your letter, your worm, and your postal card, all came duly to hand. Your worm is the larval form of the "Royal Walnut Moth," (*Ceratocampa regalis*) but as the caterpillar is more frequently found than the moth, it is usually styled the "Royal Horned-caterpillar." Indeed, persons may be for years acquainted with the caterpillar, without ever having seen the moth, and if they attempt to breed it they may fail ten times where they succeed once. This worm is partial to the black walnut, but it also feeds upon the leaves of the butternut, the hickory and the persimmon. From the the first to the middle of September it comes down from the trees and burrows into the ground, where, in a week or ten days, it changes into a black chrysalis, first having formed a cavity, in which it reposes until the following month of June, when it issues forth one of our largest and most beautiful American moths, the females of which deposit their eggs on the trees they are accustomed to feed upon, and the same cycle of development occurs year after year. There is but one brood during the year, and from their limited number in any locality, there is reason to believe that many of the young perish, and also that many of those that go into the ground, from unfriendly causes never come forth again. Too much drought, or too much moisture is sure to kill them—at least this is so in breeding them artificially.

You are entirely mistaken in regard to its nest. This worm never spins a web on trees, nor elsewhere. The web you sent seems to belong to some species of "web-worm," (*Hyponotria*) and from the great number of granular pellets it is doubtless the abandoned nest of a colony of these little defoliating pests. The Horned caterpillar is solitary in its habits, rarely more than one being found in the same place. The largest specimens found in Pennsylvania rarely exceed five inches in length, and no doubt farther South they may be larger, even six inches, and *possibly* eight inches in length; but 10 or 12 inches—accordcording to your informant—seems a "little steep." It is like the man, who, under a fright bought a one dollar shad, and when he got it home it turned out to be a two-penny herring. They are very formidable looking animals, and people generally have a great dread of them, but they are perfectly harmless, and may be handled with impunity. I have handled dozens of them without sustaining the least injury. The female moth, which is usually the largest, expands six inches (more or less) from tip to tip of its front wings; and the colors are a brick red, yellow, and fawn or gray—a very showy insect, and coveted by collectors. The first of these worms I ever saw was when I was a boy about 10 years of age (1822). It fell from a black walnut tree, and very nearly fell on me. I and my companions were dreadfully frightened at it, and we represented it as "bigger than the biggest cowcummer." Finally we returned to the place and managed to get a string around it and carried it into the town, where it was the wonder of the period. By the time we arrived home it had diminished in size to that of a much "littler cowcummer"—it may have been five inches long. Thus it is in the domain of nature, there often is a vast difference between the *apparent* and the *real*, where we subject its phenomena to mathematical rule; and yet there are many instances in which the real far transcends the ideal.

THE "FLEE-BEETLE."

Mr. T. S., Marietta, Pa.—

SIR: Your bottle, by the hands of Mr. John Jacobs, was received. It contains fifteen specimens of the "flea-beetle," that has recently been infesting the tobacco crop in about Marietta and elsewhere. This insect is the *Haltica (Epitrix) pubescens*, Ill., and is the same insect referred to in my first paper on "Tobacco Pests," published in the *New Era* in June last, and on pp. 82, 83 of THE LANCASTER FARMER for June, 1880. On that occasion among other insects, as infesting the tobacco in the seed bed, there were two specimens of *Haltica*, and these were of two different species, namely, *pubescens* and *cucumeris*, but the whole fifteen of yours are the first named, and I feel thankful for your condescension, for it enables me to determine approximately which species is most abundant and likely to be the greatest pest to the tobacco plant.

The whole family *Halticida* are leapers—indeed that is the meaning of the term *Haltica*, and *pubescens* has reference to the short hairy or downy surface of the body, which is only visible through a microscope. The *cucumeris* originally infested the cucumber, and hence its name. This insect also infests the potato vines and other solanaceous plants, and as the tobacco is allied to the same family it is not at all surprising that these insects should manifest a preference for it, on account of its greater succulency.

I could name a dozen of different insects that now infest the tobacco that formerly infested other plants, and they infest it for the reason just stated, and because of its great abundance. I am often asked why it is that tobacco grown in a district where it had never been grown before should immediately be infested by the "Horn worm," although miles away from any other tobacco field. My answer is that the worm was previously there in limited numbers, feeding on other allied plants. I have known the "Horn-worm" from my boyhood, and dug up its chrysalis, with its peculiar handle, many a time in digging potatoes in the fall, long before any tobacco was cultivated in Lancaster county or Pennsylvania. It then fed on potato vines. After the introduction of the tomato and the egg-plant it attacked these plants, and when tobacco was introduced it showed a still greater preference for this plant, and because of its abundance the number of the worms proportionally increased. The case is the same with the *Halticuns* or "Flea-beetles," the "cut-worms," the "Soldier bugs," the "Tree Crickets and others. This summer I bred the moth of the Southern "Boll-worm" (*Heliothis armigera*) from a larva found on tobacco and sent me from Spring Garden, in Donegal township. Tobacco is a great crop. It furnishes an abundance of provender for noxious insects, as well as pecuniary profit to man.

This is the second brood of these insects (if not the third) and this brood will hibernate in the beetle form during the winter, and be on hand next spring for the young crop. Second

or third broods are always more numerous and more destructive than first broods, for the reason that every female who survives the winter is capable of producing a brood of two or three hundred; therefore, it is of importance that they should be destroyed early in the spring. They are too small to capture by hand—moreover they are like the Irishman's flea, "When you put your fenger on him, faith he's not there." Neither can they be reached with a liquid or dry poison, for the same reason. Spraying them with a poisonous liquid early in the morning or on a cool day, might have a good effect. Little seems to be known of the *larva* of this Flea-Beetle. They are never found on the plants, and they probably pass that period of their lives in the great matrix of "mother earth," or feed upon some other vegetation, but many of them are so exceedingly small that their study would be attended with many difficulties. Plowing the tobacco ground late in the fall and bringing the hibernating subjects to the surface, where they would be exposed to the weather vicissitudes of a long winter, would doubtless have the same effect upon them that it has upon other insects of similar habits in this respect. But many insects that bury themselves in the soil have the power of enduring an intense degree of cold where it is uniform, but frequently alternating, freezing and thawing, is destructive to them. They are, however, one of those evils we must learn to endure if we cannot cure.

POTATO WEEVIL.

A gentleman having written to us concerning a bug that was infesting his potatoes, we submit the following:

The ash-colored insect that infests your potato stalks is a true beetle, and belongs to the great family CURCULIONIDÆ or "Snout-Beetles," of which the common *Curculio* is the type. This insect is *Baridius binotatus*, the "two-spotted potato weevil." As you say in your note, the eggs of this insect are deposited on the stalks several inches above ground, and where they hatch the young, white footless, maggot-like grubs bore into the stalk until they reach the centre, and then continue their course downward until they reach the end of it, under ground, where they are transformed into a *pupa*, from which, in due time, the perfect beetle is developed. It is as a grub that this insect is most destructive, and as it works altogether inside of the stalk, no remedy could reach it, therefore, when the potato vines begin to show the presence of the grub in them, the only way is to pull them up, and immerse the parts containing them into hot water; or by throwing them into the fire and burning them. This may be slow and tedious work, but you may have the satisfaction of knowing that for every female you destroy, you prevent the possibility of at least three hundred immediate successors, which would otherwise be developed. These beetles hibernate during the winter, and are on hand for the crop next spring, therefore, it would be well to destroy all the beetles you can find from this time forward.

MYERSTOWN, Leb. co., Pa., Aug. 9, 1880.

ED. LANCASTER FARMER—*Dear Sir:* I have just enclosed a strange specimen in a small box and mailed it to you. I found it growing upon the leaf of a kind of exotic lily. They appear to belong to some insect, and look like small cocoons, though their marked regularity of position would seem to me to indicate the fact of their being eggs. Would you please examine them and oblige me by letting me know what they are.—*I am yours respectfully, Andrew Thomas G. Apple.*

Postal-card and box duly received. Our correspondent is right in his surmises that the specimens in the box were the eggs of an insect. They are attached by one end to slender, hairlike footstocks, and are the eggs of a species of *Chrysopa*, and most likely of *occulata*, although I could not determine the species from the eggs alone, especially as there are several species of them. They are commonly called "Lace-wings," or "Golden-eyes," and belong to the family HEMEROBIIDÆ, of which the "Ant-Lyons" are the type. The Ant-Lion is known by the funnel-shaped pit it constructs, the inner walls of which are finely granulated, and woe betide the straggling ant that falls into it, for buried under the granulations at the bottom, he will encounter his deadly foe, who has been lying in ambush for him. The larva of the "Lace-wing," however, does not form such a trap, but prowls about and regales himself upon the luscious juices of the plant-lice, (*Aphids*) and when he has completed his larval development he spins himself up in a small spherical cocoon, and in due time comes forth a beautiful pale-green fly with large gauzy wings and golden eyes; and it is the female of this fly that deposits the little eggs found on the lily, but not particularly on this plant, for they are oftener found on the leaves of trees or shrubs—perhaps in any suitable place they happen to be in, when their *time* of oviposition supervenes. They belong to the order NEUROPTERA, or net-winged insects.

Dr. C. A. G.—The small, light-brown insects submitted to my examination are COLEOPTERA, and belong to the TENEBRIONIDÆ, or "meal-worm beetles," of which the common "meal-worm," *Tenebrio* molitor, is the type. On examination I find they are not at all what I supposed they were when I first saw them. Those I found about the grain stacks, in grain bins, and in mills, are a species of *sylvanus*. Although, for the matter of that, the meal-worms are also found in mills, or wherever meal is kept. Many of the species, however, live in decayed wood; others are found under circumstances which render it doubtful what they feed upon. The "Graveyard Beetle"—*Blaps mortisaga*—belongs to the same great group—HETEROMERA—but to a different family. On comparing this little beetle with its allies in my collection I find I have not got it at all; it is therefore *new* to me, although, perhaps, not new to science. I, therefore, cannot name it specifically, but as soon as I learn its name I will inform you of it. Pulverized elmwood is akin to meal, and it is not surprising that this insect should be found in such an element. A wonderful change seems to take place in the habits of insects as their surroundings change. They seem to adapt themselves to the conditions of advanced civilization—educate themselves, as it were, up to the standards suggested by necessity. See how many different species are becoming *tobacco chewers* that never chewed tobacco before.

Mr. G., Lititz.—The mealy and wooly insects found clustering the branches of the alder, at Lititz Spring, is no doubt the species of APHIDIDÆ described by Dr. Fitch as *Eriosoma imbricator*, which also infests the beach trees. A strong stream of tobacco decoction, or diluted carbolic acid, we think would extinguish them.

S. P. E., Esq.—Your deep purple larva, with the pencil-like tufts on the first and last rings of the body, and the orange-colored tubercles on the back, is that of *Papilio philenor*, of Say. Your singular green and gray larva, with the speckled head and bifurcated caudal segment is a *Notodonto*, and probably *albifrons*, as that species is usually found on the oak.

Mrs. P. E. G.—Your beautiful variegated Lepidopterous larvæ, which you found feeding on cherry leaves, corresponds very nearly to *Notodonto unicornis*, as illustrated on plate 2, figure 8, of Harris' entomological correspondence. It has gone into pupation, and if we succeed in bringing out the moth we shall have more to say about it hereafter.

Mr. L. L. D.—The yellow striped caterpillar, with a red head, a red band around the body, and with tail raised, which occurred in a group on your dwarf pear, stripping it of its leaves, is the larva of *Notodonto coccina*, and is also found on the apple, the cherry, and the plum. Your plan of saturating a sponge with coal oil, fastening it to a pole, igniting it and then holding it under the group and "roasting them" is a very good one

CONTRIBUTIONS.

FOR THE LANCASTER FARMER.

FORGETFULNESS OF BENEFITS.

I am often surprised at the forgetfulness of our agricultural writers and editors, when referring to past operations of their own department in our nation. In your issue for August, page 128, column 2, you—one of the most careful and reliable men—say, speaking of the Report (No. 24) for June and July, on the condition of crops: "This is certainly a great improvement on the old plan, when we only heard from the department once a year, and then only when half the succeeding year had passed away."

The monthly reports of the U. S. Department of Agriculture were begun by Isaac Newton, its first commissioner, I think in 1863, but certainly some 15 years ago. They were continued by every commissioner who succeeded him, generally compiled and edited by J. R. Dodge, one of the ablest agricultural statisticians in our country, and so esteemed in Europe. They were designed, and proved very effective to prevent those speculations in grain which often defrauded both producers and consumers by giving full and correct statements of the condition of all kinds of farm products, in advance of harvests and markets. And in all those years they have been constantly quoted from and referred to by all the great leading newspapers of our cities, as well as by most of our country papers. Yet all this seems forgotten, and they are now hailed as a quite recent institution.

In the same manner we have read of tea culture in our land as a recent affair; when it was begun in South Carolina long before the rebellion; and the department of agriculture has been distributing thousands of tea plants every year all over the South, ever since that war ended.

Only a few days ago we read a gratulatory that garden and farm seeds were now distributed to farmers direct from the department, instead of being all given to M. C. to be distributed by them to political hacks and trickster in the cities. The fact is that ever since the department was established it distributed seeds to every agricultural society and club whose address it could obtain, and to all prominent farmers, gardeners and horticulturists known to it, as well as to any individual who applied to it, whether prominent or not. And that seeds and plants might have the widest possible distribution, large quantities were given to members of Congress, to be sent by them to such persons as would properly use them and report that use and their success or failure. In many cases members of Congress preferred sending lists of constituents most likely to use the seeds rightly, and requested the Department to send their quota to the persons directly, which was always done.

Immediately after the rebellion the Department was informed that the entire South was destitute of *good* seeds of every kind, and had but few even bad seeds. Commissioner Newton immediately requested, and Congress granted a large appropriation to purchase seeds to supply the destitute in the Southern States. But as there were no Southern members of Congress, how distribute them? Every clerk and many visitors were asked to give names and post-offices of acquaintances. Masons and Odd Fellows furnished lists of prominent Southern brethren. Postmasters and other civil officers were entered on the lists, and thus an immense Southern area was reached, and tens of thousands were promptly supplied with seeds, for gardens and farms,

far superior to any they had had for years, and they were informed when and how to plant and sow, and directed to save *all the product for future seed*. Some probably cooked and ate without planting, but many more sent thanks and praised the produce they gathered. In the haste of purchases and packing some few stale seeds were possibly obtained, and a few were mislabeled or damaged in transportation. And these very few and unavoidable mishaps were magnified, and the kind-hearted old Commissioner was ridiculed and censured for "sweeping seed stores of their old refuse," and "sending the choicest and dearest garden seeds to be cooked and eaten up by the blacks and poor whites of the South!!" And yet we have seen complaints (and, I think, by members of Congress on the floor of Congress,) that the Southern people had never been benefited by the Department of Agriculture till very lately!

While I would not rob the present Commissioner of a single iota of credit for his great efforts and labors yet am I as unwilling that his worthy predecessors should be deprived of their just dues to add to his reputation. They began amid the inexperience and difficulties of a new institution and untried experiments. They accumulated an immense mass of valuable information, and by diffusing it abroad have paved the way for many future successes. The present Commissioners entered on their labors and found their materials, as well as their success and failures, ready for his use and guidance. There is, therefore, no necessity, and no justice, in depreciating either, nor in unduly ascribing to any the works of others. But let all agriculturists render "honor to whom honor is due," and be charitable to all who labor in their behalf.—*A. B. G., Washington, D. C.*

For The Lancaster Farmer.

BEES DO NOT ATTACK SOUND FRUIT.

"No opinion seems to be more generally prevalent than that bees tear open the outer skins of grapes, plums, peaches and other fruits for the purpose of feasting on the sweet juices within. Because they are found on these fruits in the act of committing a trespass they are condemned without a hearing or any consideration whatever. It is most commonly said they sting the fruit. This is the result of sheer ignorance. Neither the bee, nor any other insect, employs its sting for such purposes; they have them for other uses, as a means of defence against enemies, and use them solely as nature designed that they should. It is as impossible for a bee to sting open a grape as it is for it to open a walnut or a shellbark by the same process. Its only means to commit the deed of which it is accused is the proboscis with which it is armed; but this, although perhaps capable of tearing open skins of ripe fruit, is never used for that purpose, its functions, like that of the sting, being far different and confined exclusively to to the ends designed by nature. Although the charges are based mainly on the fact that at this season large numbers of bees are seen on the grapes on our vines, busily employed in helping themselves to the palatable juices, yet we assert very positively that none of the persons who bring this charge of stinging the grapes have ever seen the insects depredating on a sound grape or attempting to tear one open. They always select those already injured, and never perpetrate an original injury."

Bees Do Attack Sound Peaches!

Editor Lancaster Farmer: The above article, clipped from the Philadelphia *Record* and there credited to The Farmer,* defends our sweet friend the honey-bee from the charge of originating his own depredations on fruit, with a confidence that ought to be founded on accurate knowledge. I fear, however, that it is not. There is little to be said for the good sense of the people who imagine that he uses his poisonous *sting* for the purpose of puncturing the fruit. Nature seldom makes such a fool of herself as that; nor is the bee under the necessity of turning his stiletto into an agricultural implement for such a purpose. Nor will any one suppose that his slender and weak proboscis, with which he sucks the juice of the grape and the nectar of the rose, is adapted for such purposes; but you seem to forget that he has a pair of stout *mandibles* as well. No doubt the polished and tightly-packed skins of the cherry, plum and grape, are ordinarily beyond his power to puncture even with these; but that the rough and tender cuticle of a ripe and luscious peach presents no such obstacle, I have the best of reasons for believing. I have a tree of peaches ripening July 15 to 25, fully half of which were this season tolled by the voracious insects. As soon as the exposed cheek of the fruit began to soften, they attacked it; and it was not uncommon to see ten or a dozen bees upon a single fruit. Upon driving them away the whole surface would be found thickly covered with the punctures through which they sucked the rich juices. This was so in innumerable instances. I cannot say that I actually saw any single bee making his first attack upon a sound fruit; but as the bees were there in force, and the other guilty creatures were always "conspicuous by their absence," you will find it difficult to convince me that those larcenous saints were innocent. They were caught *in flagrante delicto;* there was a pocket for each of the hypocritical little rascals, and each was caught with his hand in that pocket! What sort of a verdict would *you* render in such a case as that, where the pocket was your own?—*E. Wells, Wilkes-Barre, Pa., Aug.* 28, 1880.

*This is a mistake. It may have been from some contributor, but it is, personally, not ours, whether true or false. See our views on page 131 of the present number of The Farmer.

SELECTIONS.

TOBACCO CULTURE REASONS FOR TOPPING LOW.

There is no subject of greater importance to the tobacco grower than that of topping tobacco. Tip's has come to be vital. It is so essential that if tobacco growers will not top their tobacco low they must expect to reap unsatisfactory results. We appeal, therefore, to all growers to top down low, and not be alarmed lest they should lose weight by so doing. Leave from 8 to 14 leaves on a stalk, as in the judgment of the grower seems most judicious. Top your tobacco all about the same time. Top as soon as the blossom buds make their appearance, and in some instances before, in order to even up the growth of the crop and to fit it properly for harvesting about the same time. Top and sucker early in the stages of the growth of seed stems and the suckers.

Do not let the growth of your plants go to waste in unnecessary formation of long stems and useless suckers; but let the juices and strength of the would-be sucker stems go directly into the leaves to give them heft and value. Let the tobacco stand variously from twelve to fourteen days after topping; and if it be domestic Havana, it is said that it is better to let it stand for three or four weeks after topping. Sucker often. But above all things, top low. I have seen many crops seriously injured by not topping low enough. Many growers seem afraid that they will lose weight of leaf by topping low. This, however, is not true. The reverse is the fact. You get larger, broader, better and stronger leaves by topping low. You get better colors. You get more weight of leaf. You get healthier tobacco and less white veins by topping low. You get more even tobacco, of more uniform growth, and, therefore, more marketable leaf, by topping down. In a word, you get by far more per pound for your crop by topping low; by topping it down sufficiently low for your own interests and the interests of the manufacturers.

Hanging.

Hang on laths, in sheds that are roomy; that can be closed up tightly if need be; and build walls under your tobacco house. Do not allow your tobacco to pole-burn or pole-rot, by hanging the plants too closely together. In muggy weather give them plenty of air to prevent pole sweat o rot. In dry, hot, sunny weather, close your sheds tightly. In droughty weather, wet the ground, or a litter of straw placed under your hanging tobacco.

CULTIVATION OF TOBACCO IN CUBA.

The tobacco is planted from the seed. The soil being pulverized and enriched with manure, the seed is sown broadcast and the plant having grown to a height of eight inches, it is set out in rows about two feet apart, when it has much the appearance of corn planted in this country. In Cuba great care has to be exercised in guarding the seedlings from the tobacco worm. This is the only insect enemy the plant has, for it is so astringent and bitter that nothing else will touch it; but so destructive is the worm that if not looked after closely it will in a single night destroy an entire plantation. As the worm conceals itself during the day it is customary for the planters' hands to go forth by night with lanterns to destroy the pest. The tobacco having grown until the leaves are fully developed, the first cutting of leaves takes place; these first cut leaves are the largest and finest. The plant is afterwards allowed to grow until there is a second supply of smaller leaves, which are also cut. The leaves as they are cut are carried to the tobacco houses on the plantations, where they are exposed to dry by the action of the air, which process occupies about six weeks. They are then piled in layers, each layer being sprinkled with a liquid called "betun," which is a strong lye made by soaking tobacco stalks in water. The heap of tobacco, or "pilon," as it is called, is covered with banana leaves and allowed to ferment for a couple of weeks. This curing process being completed, the tobacco is selected and graded according to the size of the leaf, the largest leaves and those finest in color and quality being used for wrappers, and the smaller for filling cigars.

GOLDFINCHES vs. GRAPES.

For several days we noticed that something injured and ruined many of our ripe grapes. The outside grapes of the ripest bunches were burst open and let hang, part of the substance having apparently been sucked out. Several times as we approached the vine a goldfinch flew away, and our suspicions were fixed upon that. In course of three days one-fourth of the grapes on a large vine were ruined, and the most of those the third day. That evening, a little before night, we discovered all the thieves at work at one time, and they were six goldfinches. They work fast, and six of them, if unmolested, would ruin a bushel of grapes per day, if not more. It is impossible also to keep them away with anything less effective than powder and shot. We give these facts, as others may profit thereby and save their grapes-if not this year, next.—*Selinsgrove Times.*

HYDROPHOBIA OR RABIES.

It is something more than probable that a distinct nervous disorder or specific disease exists which is only developed after a suitable subject is inoculated with the virus. That it is *not* the result of a morbid imagination can be attested by the fact that the lower animals contract the disease under the same conditions as man. The reason why so much confusion exists concerning this disorder is its rarity; though dog bites are very plentiful, as every tow-headed urchin and newspaper can testify, yet a case of hydrophobia is very rare, so very rare that most of our most experienced physicians have never seen a case. This fact should be more generally known to save needless alarm and terror, and the useless strapping and muzzling of dogs, which have now a real reason for getting mad and biting somebody. Dogs, like men, suffer a variety of disturbances of health, which in no case of man or beast serves to improve the general kindliness of temper. In no case of suspected "madness" should the animal be killed, if it can be secured from mischief otherwise; in this way is lost the opportunity of making valuable observations. It was a great misfortune that the dog was dispatched that bit the Booth child. The "snapping and barking like a dog" is not a proof con-

clusive of hydrophobia in an individual suffering with convulsions. I saw an infant of six weeks of age, some time ago, that for two days before death uttered cries resembling the bark of a dog. In the days of our grandfathers hydrophobia was more believed in than is the case to-day; there is very good reason to believe that many cases of profound nervous disturbance were referred to hydrophobia which now would be better understood. Upon this error in the diagnosis was, possibly, founded the widespread fame of the "Stoez's cure" specific for hydrophobia; which the forepart of this century, and much later, was believed in so confidently that men rode great distances on horseback to procure it. Its use is, by no means discontinued. A party in Hanover, Pa., prepares the formula, and at least three others in the United States, one being in California. "Regulars" do not recognize it as a valuable preparation. It is used almost exclusively in domestic practice, and may be by some doctors to allay anxiety when a preventive is desired. The Anagallis, or "red chick-weed," is the plant in which the virtues for the cure of madness are supposed to reside. It is a pretty little plant, sparingly found in dry fields, and sometimes makes its appearance in gardens, and in Europe has the common name of "Shepherd's Weather Glass," because the flowers open quite uniformly at 8 o'clock in the morning and close at 2 P. M. When the day opens cloudy the buds drop off without opening.

It has a reputation rather as an antidote against bad consequences from the bitings of mad dogs and wild beasts, of at least two hundred years standing.

Very good authority says it is *inert*, that it has no active medical properties, by others it is supposed to be a tonic and a nervine.—*L. D. Z., in Lancaster Intelligencer.*

THE CROPS—THE OUTLOOK OVER THE COUNTRY.

The following statement, showing the condition of the cotton, corn, wheat and tobacco, was issued by the Department of Agriculture:

DEPARTMENT OF AGRICULTURE, August 16.—Cotton—The returns to this department ment since August 1, shows an increase in the condition of cotton since those returned in July. The average condition for the whole country is 102. The following are the reports by States:

Forty counties in North Carolina average 106.

Twenty counties in South Carolina average 98.

Eighty-four counties in Georgia average 98.

Twelve counties in Florida average 96.

Twenty-eight counties in Alabama average 99.

Thirty-seven counties in Mississippi average 99.

Fifteen counties in Louisiana average 99.

Seventy counties in Texas average 110.

Thirty-five counties in Tennessee average 107.

Timely rains are reported in all sections, rather too much in the States bordering on the Mississippi river and Texas.

The stand is good and some ten days earlier than last year. Worms, rot and rust are mention in every State, but no material damage yet done.

Corn—The general average of the corn crop shows some decline since a month, and is for August 1, 98 against 100 on July 1. As compared with the condition reported on August 1, 1879, there is an increase of 5 percent. Of 1,243 counties reporting the crop of August 1, 355 report a full average, 488 report above, and 400 report below.

The New England, Middle and Atlantic States as far south as North Carolina each show a very high average. South Carolina, Georgia and Alabama show the effect of drouth. The whole Mississippi valley shows an increase over last year, except Illinois and Indiana, where there was too much rain early in the season, followed by a severe drouth in June and July.

Spring wheat—The returns of August 1 show a condition of spring wheat of 88 against 81 last year. The weather during July was favorable—more so than during the last two years. In Minnesota the report is very high, but in Iowa and Wisconsin it is not much better than last year. The damage is attributed to rust and chinch bugs. In Nebraska and Kansas the early months were very dry, and the rains which came were too late to restore the loss. California and Oregon report the highest condition since several years.

Tobacco—The general average of the whole country is 86, and was in 1879, at the same time, 77, and in 1878, 84. There has been no change reported since a month, except a decline in Maryland and Kentucky, owing to drouth, and an increase in Virginia, owing to favorable weather, of 7 per cent.

THE PRINCIPLES OF PRUNING.

The art of pruning is one of the simplest as well as one of the most important operations connected with horticulture. Yet it is one that is frequently neglected, or ill-performed. The principal objects of pruning are to induce a vigorous and symmetrical growth, remove superfluous wood, and promote fruitfulness.

Whatever be the form of training adopted, there are some general principles underlying all pruning operations which should be observed to some extent, though no precise rule can be given for all cases. Briefly stated, these principles are: When the growth of wood is large and the tree or vine vigorous, more wood should generally be cut away than when the tendency to the production of wood is small. When there is a great tendency to the production of both wood and fruit, pruning of the wood and thinning of the fruit, or both, may be necessary in order to produce the best specimens. Shy bearing in trees is sometimes treated with root pruning. When an upright growth is desired, pruning of the lateral growth is required, and when a rounded, bushy growth is wanted, the main or central stem and longest laterals should be shortened in.

To prune successfully requires taste and good judgment, and much beauty and utility can be given to the form of a tree by proper pruning; but too much or unskillful pruning may be done with scarcely less injurious results than those that follow the neglect of the operation. Pruning at the wrong season, the removal of very large branches, and the neglect to prune, are responsible causes for the irregular-headed and unshapely trees which are found in far too many orchards.

In order to have well-shaped heads on trees, pruning and training should be commenced when the trees are quite young. Many trees are trained with too low heads, which much interfere with the work of cultivating an orchard. In garden culture, or for ornamental specimen trees on the lawn, low-headed, horizontally branched trees are sometimes desirable; but for orchard culture the heads should be high enough to allow a convenient approach in cultivating. Removing large limbs from trees is a practice much to be deprecated; but whenever necessary it should be done very carefully, and at the proper season, so that the wound will heal rapidly and the tree suffer the least loss of sap. The removal of large limbs also causes an unsightly trunk, making it rough, harder to clean and a more secure harbor for insects, moss, &c.

When superfluous roots or branches are removed in their incipient stages of growth, no such effects are produced. Summer pruning, or more properly nipping of the shoots as they grow, can often be employed to advantage, and whenever it can be it is far preferable to pruning when the wood is dormant. This method of pruning, if begun in season while the tree is young, will cause an even and symmetrical growth, which cannot be so well attained when all the pruning is done when the wood is dormant. Spring-set trees are generally in need of thinning out of superfluous branches, shoots and buds of the same season's growth, which can be done better early in the season than when the wood becomes dormant. Blackberry and raspberry bushes can be rendered much more shapely, and of more substantial growth, by nipping in the canes when about three feet high, than by allowing them to spindle up; in which condition they are not as well fitted to carry a crop of fruit, or withstand severe cold or storms.—*Examiner and Chronicle.*

LIME AS A FERTILIZER.

For two or three generations, at least, the land in Southeastern Pennsylvania has been regarded as in need of lime to produce good crops. On the best farms it has been used for this period, and until lately it has been recognized as an indispensable fertilizer for almost every crop. It has been applied indiscriminately to all kinds of soil—clay, slate, sandy or limestone loams. For a considerable period after its first application to the soil, its effects were very marked. In western Chester county and in the southern part of Lancaster county, and the adjacent parts of Maryland, it has been considered of so much importance as to be worth hauling a long distance and at an entire expense (including spreading) of about forty cents per cents per bushel in the latter locality; and it is easy to see that its effects were considered highly beneficial when an application of 30 bushels per acre would cost $12, and 50 bushels, which is a common application, would cost $20; and this costly manure was often used every time sod was broken—that is at periods of 8 or 10 years.

Like many other things in agriculture, the best method of applying it has never been settled, neither has it been demonstrated that any soils require it at intervals, every 8 or 10 years indiscriminately. Practical experiment is left to solve this, as it has most other problems concerning the soil and the needs of the farmer.

In regard to the theory of lime acting upon the soil we are also left very much in the dark by scientific men. By Leibig and many other writers it is designated as a manure, while many regard it simply as a stimulant to the soil, merely decomposing the elements of plant food and assisting in assimilating them. Perhaps, in justice, it is both. That it is found in most of the farinaceous grains, the deductions of chemistry abundantly prove, and that it performs the office of decomposition is also sufficiently well attested. If it enter into the composition of grain, say wheat for instance, the quantity of lime in a product of 25 bushels per acre is quite small; a bushel per acre would supply this small requirement for a long series of years; but if we consider lime as performing the office of decomposing plant food, then certainly a larger quantity would be necessary; but the demands of nature though pretty constant would not require that liberal and extravagant application that many farmers apply. It is not by any means a universal plant food; it alone, unaided, will not make poor soil rich, nor raise heavy crops from sterile land.

Within the last few years the effects of lime have not been of so marked a character upon lands that have been plentifully limed for a series of years, as was the case at its first introduction. On many farms in this locality where 100 bushels of lime per acre have been applied within the last 30 or 40 years, now no appreciable increase of produce is found to result from its further application. Strips limed across a field and spots here and there over a field show no larger yield than other parts of the field not so treated. In fact it is now as common to experiment with lime to see if it does any good as it was formerly to find out how much it did. It is true that some soils have a certain quantity of lime in them, while in others there seems to be little if any; it is therefore obvious that to the last mentioned it is indispensable, a small portion at least. A great many farmers have discarded its use altogether, and they find other fertilizers much more effective and profitable. The lesson taught by these facts

is that a rotation of manure is as necessary to a successful cultivation of the soil as a rotation of products.—*T. B., in Lancaster Inquirer, July* 22, 1880.

CULTIVATING BASKET-WILLOW.

Many years ago a large amount of willows were raised within from ten to twenty miles of Philadelphia, for basket-making purposes, and a considerable amount is yet raised, but nothing near what was grown in years gone by. We do not know why there has been this falling-off, for the basket-makers tell us that at the prices they pay osier-growing must be profitable. We have not to hand any statistics as to the actual profits to be made on an acre of willows; or, indeed, of the product, but from the fact that the willow when grown in this way does not much interfere with the growth of grass about it; that from one to two tons of meadow grass to the acre can be had from a lot of willow-land, would seem to indicate that something good ought to be made out of it. The willows cost very little in the way of expense. They have to be cared for, to be sure, when young, for grass and weeds, if they do not actually smother them out, will interfere very much with their growth. Then this care has to be kept up for three or four years, as it is this long before a willow plant will be strong enough to cut back, so as to throw out many strong shoots. But these strong stocks once brought up, there is no more labor, as the buyer of the willows, at least about Philadelphia, will cut and carry away themselves, doing their own peeling and whatever is necessary to bring the shoots into a proper condition for use.

The kinds most generally employed about Philadelphia are the white, gray and purple willow; the last being a delicate kind for fine work. The last kind, the purple willow, is not perhaps so well adapted for growing in grass as a meadow, and it is too delicate to grow very high, and it is best to give it all the ground to itself. In fact, wherever we have seen this kind grown in this vicinity, it so occupied all the ground.

As we have said, we have no facts or figures of any account to hand; but it seems on a first view that much more might be made of it than has been done. The invention of a process for softening wood, so as to fit it for basket making, and yet not affect its enduring quality, may possibly to some extent interfere with the profits of the willow, but as to driving it out of cultivation, the willow is too easily raised, and will grow in land more worthless than any of the oaks, and along streams and swampy places, where nothing else of any use would grow, and so rapidly, too, as in some cases to admit of two cuttings a year. In fact, whatever may be done in the way of softening or steaming of oak, hickory, ash and other hard woods for the purpose of basket making, etc., it has thus far made but little progress, and assuredly not enough to drive, at any time in the future, the willow out of cultivation.—*Germantown Telegraph.*

WATER AND FOOD FOR HORSES.

Horses and cattle normally require, in round numbers, four pounds of water for each pound of dry substance in the food, while sheep require but about two pounds, or half as much. This estimate, the result of many careful experiments, includes the water contained in the food, as well as that in the drink. The amount of water needed by pigs has not, I think, been accurately determined.

With horses we find a different digestive arrangement—one that changes the conditions which were suitable for ruminants to a very important extent. Horses have but one stomach, and that relatively small. It contains, when fully distended, but fifteen to sixteen quarts, and in this condition is too full for the performance of its functions. Usually, when digesting the food, the horse's stomach does not contain more than ten quarts, and as more food is eaten some of the contents pass onward into the intestines, to make room for it. In eating a full feed of hay the stomach is filled two or three times, so that the part first eaten can remain but a short time for digestion. Now, here is a point of great importance. The albuminoids of the food are digested in the stomach, and a stomachful of grain contains four to six times as much of these as a stomachful of hay. Consequently, for a sufficient quantity of gastric juice to be mixed with the grain and produce its full effect, requires a much longer time than with hay. If, then, we feed oats or corn, and immediately afterward hay, we may be very certain that the grain will be forced from the stomach before it is perfectly digested; but if we feed the hay first and then the grain it is not difficult to understand that the latter can remain in the stomach a sufficient time.

There is one advantage in mixing oats or ground feed of any kind with cut hay or straw, and that is the more perfect mastication which the animal gives in this case; but it is doubtful if this advantage holds good with cattle, as they do not chew their food perfectly when eaten, but rely on the rumination which follows. In mixing feed for horses we should not put a great amount of coarse food with the grain, or we will give more than the stomach will hold, and the last portions eaten will force the first ones into the intestines before they are thoroughly impregnated with gastric juice. Thus two pounds of hay and four pounds of oats are about as much as should be fed at once when mixed, and if more oats are given the hay should be decreased. For instance, five pounds of oats and one and a half pounds of hay may be given.

Now, these facts will give us a better understanding of the effect of water on digestion. If after feeding hay and then oats we allow a horse to take a large drink of water, a considerable part of the oats will be carried by the water into the intestines, and we get little of the advantage of feeding the oats after the hay. If such a drink is taken soon after eating hay alone, the effect will not be so injurious, because hay does not need so long a time for digestion as grain. If only one or two quarts of water are allowed, it will pass the food in the stomach without changing its position to any great extent. When the stomach has got rid of a considerable part of its contents it seems a difficult matter for it to force out the remainder, and fermentation and colic sometimes result. A drink of water at such a time, by carrying on the substance which has remained long enough, relieves the condition. This probably explains why some horse-car companies have found it advisable to have their horses watered at midnight.—*Michigan Farmer.*

CULTIVATION OF CELERY.

Many edible plants most valuable as food, or as a relish, are omitted in the list, even when a respectable garden is attempted by the farmer, and for the reason that, without some definite knowledge as to the cultivation, failure is pretty sure to follow. One of these, celery, quite easy to grow and most valuable in itself, is quite generally neglected, or, when its cultivation is attempted, failure results oftener than success. One reason is the prevailing idea that it must be grown in trenches, carefully watered and specially manured. When very early celery or extra long stalks are desired, it is better to grow it in trenches. Such had better be left to the professional gardener, who has plenty of means at hand to force and protect it during droughts.

For early and late winter use it is easily raised by planting near the surface of the ground; though there is no objection to planting in a shallow trench, thrown out with a horse hoe and enriched in the bottom with good compost. In any case, the richer the soil the easier the cultivation and the better the celery. In fact, on a poor soil success will never be attained without plenty of manure, and the manure used for the current season must be thoroughly decomposed.

For late celery, open such a trench or trenches as you may be able to with a horse hoe, and about five feet apart, if more than one is wanted. Fill these half or more full with rich, rotten manure. Run the horse hoe again through the trench, not so deep as before, to spread and partially mix the manure with the earth. Plant the celery therein, pressing the earth pretty firmly about the roots. Water the whole well, and after the water has settled entirely away draw the mixed earth from the sides well about the base and stalks of the plants, taking care that the earth does not cover the heart or central shoot. If the plants are large and rather long, it is better that the tops of the leaves be cut away, as it will prevent undue transpiration from the leaves.

From July 10th to 20th is the best time for planting late celery, though we have grown fair stalks from plantings made the 10th of August in a favorable season. Planted as we have directed, at a distance of six inches in the row, using only dwarf sorts (White Solid is as good as any) the weather must be very hot and unfavorable to seriously injure the plants. If this occur, water once again thoroughly, and they will be all right.

All the subsequent cultivation is to keep the ground clean; from time to time draw the earth around the growing stalks, so they may grow upright. If this is neglected, you will have difficulty in the blanching. After the heat of the season is over and cool nights come on, the celery will grow fast, and so continue until pretty hard frosts come. It must then be lifted and taken care of for winter, the principal part of the blanching being done in the trenches in which it is stored for use as wanted.

If celery is required for use in October and November, the same general directions are to be observed. The celery may be grown without trenches; but some means must be at hand for thoroughly watering the ground if drought occurs. There should also be at least three feet of space left on each side of the row, to provide for soil for earthing the plants, since this must be entirely performed and the plants blanched in the rows, where they grow. The farmer's family will, however, care but little for celery so early in the season; for at tat time there is a variety of green stuff at command. Celery is most valuable during the winter months. Then it is one of the most delicate, as it is one of the most healthful, of relishes, and should be found upon every farmer's table.—*Prairie Farmer.*

THE LARGEST TREE IN THE WORLD.

In Nelson's "Scientific and Technical Reader," there is an account abridged from Hutching's "Scenes and Wonders in California," of a grove of trees. This grove is situated on the water-shed, between the San Antonio branch of the Calaveras river and the north fork of the Stanislaus river, at an elevation of 4,370 feet above the sea level, and at a distance of ninety-seven miles from Sacramento city and eighty-seven from Stockton. Within an area of fifty acres there are 102 large trees, twenty of which exceed twenty-five feet in diameter, and are consequently over seventy-five feet in circumference. The "father of the forest," the largest of the group, lies prostrate and half buried in the soil; it measures at the root 110 feet in circumference, is 200 feet to the first branch and from the trees which were broken by its fall is estimated to have been 435 feet in length; 300 feet from the roots it is eighteen feet in diameter. The "big tree" was bored off some years since with pump augers and then wedged down; the stump, which stands five and a half feet above the soil, is sound to the core, and has been used as a ball-room. This tree was ninety-six feet in circumference at the ground, and 302 feet high. The "mother of the forest" was stripped of its bark in 1854, for exhibition in the New England States, and now measures, without the bark, eighty-four feet in circumference; several feet up it is thirty-nine and a half feet (also without the bark); its height

is 321 feet. The "burnt tree," prostrate, is estimated to have been 300 feet high when standing and ninety-seven feet in circumference; it measures thirty-nine and a half feet across the roots. "Hercules" is ninety-five feet in circumference, and 320 feet high. The "pioneer's cabin," broken off 150 feet from the ground, measures thirty-nine feet in diameter, but, owing to its being hollow, and its surface uneven, its average is not quite equal to that. Fourteen other trees average 291 feet high, and seventy-eight and a half feet in circumference. It is estimated from the number of concentric layers of wood in these trees, each layer of which is supposed to be the growth of a single year, that their age is almost 3,000 years, considerably younger than the one on exhibition. This grove is also described in an amusing manner by T. W. Hinchliff, in his "Over the Sea and Far Away," 1876. From his account the trees occupy a belt 3,200 feet long and 700 feet wide, which contains from 90 to 160 quisoias of the largest size; the highest is 325 feet, and the diameter of one (which I think must be the "big-tree") is twenty-seven feet. At six feet from the ground, he says, the survey party counted the rings of this section, and found the number to be 1,255; this tree, he thinks, is one of the finest in the grove.

UNCLE SAM'S CROPS.

At no former period of the national history have American farmers had so much reason to feel proud of the results of their toil as at the present time. In round numbers the money value of the exportations of breadstuffs alone from this republic, during the fiscal year ending June 30, 1880, appears to be $277,000,000. This, therefore, is the great leading export of the country, far surpassing the highest aggregate ever received for the cotton crop, which was $233,000,000. It is true that the year just closed was in many respects an exceptional one, in consequence of the threatened and actual famines in Europe. France, which usually produces enough breadstuffs for her own people and a surplus for the English markets, was obliged, during the past fiscal year, to pay to Uncle Sam $70,000,000 in gold for a stock of wheat, to avert the danger of famine in that country. Altogether the importations of coin and bullion at New York alone, during that fiscal year, were over $85,000,000.

It is very important, however, that our readers should observe that this enormous exportation of breadstuffs from the United States has been rendered practicable by the vast increase of cultivation and production. To this result the great railway system of the country has contributed to an extent that we can imperfectly express. Russia, Turkey and other countries of the old world can and do produce large crops for exportation, but they are deficient in that all-pervading system of transportation from the interior to the seaboard, which is the pride and boast of America. It is well known that the corn crop is a staple product of all our States and territories, except Alaska. But it is not so well known that wheat also is produced successfully by the same wide range of country. The Southern wheat crops, which were not important before the war, have become more and more so of late years, though it is admitted, as a matter of course, that the wheat product is the great staple of the North and West. As to the ability of our country to export such a surplus stock regularly every year as the breadstuff shipment to which we have above referred, we may remark that the exportation of the preceding year was valued at $201,000,000; and it is believed that the trade of the current year can easily be made to reach a total of at least $250,000,000.

In connection with this subject we are tempted to ask those persons who deprecate the enormous increase of our investments in manufacturing pursuits, where the farmers of the country are to look for profitable markets if their agriculture is to be stimulated to such stupendous proportions as would be inevitable if the millions of people in America who are now sustained by mining and manufacturing shall be turned tillers of the soil? We can not conceive it possible for American farming to be increased more rapidly than it is at present without great injury to the farmers, and without reducing the farm laborers to a condition of abject penury, in consequence of the deficiency of profitable markets for the crops. Fortunately for the country, the prevalent sentiment is very decidedly in favor of building up extensive, prosperous and increasing home markets as the principal and best reliance of the American farmers now and at all times, leaving only the surplus to be exported to foreign countries.—*Germantown Telegraph.*

AUTUMN WORK IN THE GARDEN.

The summer will soon be gone, but the glorious autumn is yet to come, with its soft, smoky, soothing atmosphere, its gilded foliage and ripened fruits. Each season has its pleasures, but none crowded so full and running over with enjoyment as the autumn; every season has its opportunities and duties, and those of the fall are numerous and important. What a good time, in the pleasant fall weather, for arranging beds of herbaceous plants, such as hollyhocks, delphiniums, peonies, &c. Roots can be divided without injury, and generally with great benefit to the health of the plants. Lilies, and all hardy bulbs, can also be removed and replanted as soon as the leaves begin to ripen. Plants that are somewhat tender in the North, such as tritomas, pampas grass, &c., and any other tender plants that it would be desirable to save over the winter, may be secured in pits or cool cellars. A simple pit is made by removing the earth for say two feet, over which is placed a hot-bed frame and sash. Even boards or mats will answer for a covering. Give air during fine weather.

General improvements in the garden should be now made, for our springs are short and unpleasant. Dig up and put in order every vacant bed, as it will not only facilitate spring work, but do the soil good and have a neater appearance than if left rough and weedy.

All bulbs and plants that die down to the ground in autumn, may be protected by covering the surface of the earth with leaves, manure or straw, but plants that retain their leaves during winter will not bear this kind of protection. A few evergreen boughs thrown over the bed, a little straw between the plants, or some light, open covering of this kind, is all they will bear without danger of smothering and rotting.

If you want a lawn, and the ground is clear, it is best to prepare it at once, and sow Kentucky blue grass with a little clover, or lawn grass, which is simply blue grass and white clover, with a few other nice grasses, using at the rate of four bushels (?) of seed to the acre. Sow in September and the autumn rains will give it a good start. Before winter sets in give the young grass a light dressing of manure, and by the first of June you will have a good lawn if the soil was in fair condition. In preparing soil for a lawn see that the surface is light, for it is hard to make the young grass come up in a hard soil that will bake on the surface. After the grass once gets started there will be no trouble. If the soil is stiff and likely to bake, after sowing the seed and raking it in, cover the surface with about an inch of manure, and let it remain until the grass is well up, then rake off a little of the coarsest.—*Vick's Journal*

COL. SCOTT'S MODEL BARN.

An *American* reporter in his rambles over the county, ran across "Woodburn," the beautiful residence of Colonel Thomas A. Scott, near Darby, and would like to say a word about Mr. Scott's new barn and its many conveniences. The barn was completed in March last and cost nearly ten thousand dollars, and in architectural style cannot be excelled. The carriage or coach room is at the extreme eastern portion of the building, and has capacity for nine coaches. There are about eight vehicles in it, which cost from $800 to $1,500 apiece. The coach house has six large windows with shutters, and the ceiling has fancy tissue paper, "fly catchers," nicely arranged and cut in a tasty and beautiful manner. The harness room has twelve separate cases with glass fronts, and not a particle of dust can get to any of the harness. There is telephonic communication from the harness room to the mansion house, from whence the coachman's order are received. A peculiar beam with projecting crosses is used as a harness holder, in cleaning and blackening. The stable has accommodations for twelve head of horses. At present it has ten horses, two donkeys and one pony. The ten upright posts, near the horse, and forming a part of the stalls, are carefully covered with straw plaits, for about ten feet up from the ground. The flooring of the entire first story of the barn is of granite, but immediately under the horses are wooden false floors, laid upon the stone. These come out, and are cleaned twice a week. Just at the edge of the false floor is a perforated iron strip about a foot wide, an level with stone floor, which allows all liquid to pass through. Just back of this is a straw plait about a yard wide and which is covered with loose straw, forming bedding. Just back of this plait a pretty cocoanut carpet is laid, and is kept as clean as though it were in a parlor. It is put down at 8 A. M., and taken up at 5 P. M. An iron watering trough is placed against the wall, still further back. The "fly-catcher" paper is neatly arranged overhead in all the stable. In front of the horses is a space five feet wide, and from here the horses are fed. Spoutings come down from the various bins in the second story. These are fitted with a patent gauge attachment which measures just four quarts of feed. There is one large stall set apart for a sick horse. In the upper story I found a bath-room and water-closet, nicely lighted with gas; four bed rooms, elegantly furnished, and numerous bins, admirably arranged for the purposes intended. Joseph Staddon, formerly coachman for Baron Rothschild, London, has charge of the stable. The stable is built of brick and finished throughout the interior with yellow pine, oiled.—*Media American.*

THE DEADLY HONEY BEE.

It is a disadvantage of civilization that it shows us the dangers to which life is exposed. Every year presents us with a new peril, and the latest is always the least expected. Frenchmen of science are now preaching a crusade against the industrious race of bees. Not only are they destructive to property, but they are actually dangerous to human life. The Perfect of the Paris police has been appealed to. M. Delpech has drawn up a formidable brief and is precise in his statements and clamorous in his demands. It seems that bee-keeping is lucrative in the neighborhood of Paris, and that so also is the distillery of spirits and the refinery of sugar. Moreover, wherever there are sugar works the bees are active and abundant. At Say, for instance, the loss attributable to them is estimated at £1,000 a year. M. Delpech gives facts and figures. At another refinery the number of bees killed daily amounted to 22 gallons full. He himself saw a large glass of syrup drank up in two hours. As to loss of life he is equally circumstantial. He gives a full list of people who died of bee stings in the course of the year. Most of the cases occurred in America, but many are furnished by France and some by Germany. The death is very painful, and in some cases extremely sudden. At Chemnitz, in Hungary, a peasant, stung while cutting a branch of a tree, died on the spot. At Chester, in Pennsylvania, a farmer examining some hives, was stung, fell at once into a state of syncope, and died within a quarter of an hour. In another case 25 minutes elapsed between the wound and its fatal consequence. M. Delpech accordingly appeals to the Perfect for the pro-

tection of the police, and what he asks is that the keeping of bees may be placed in the category of dangerous and unhealthy occupations.

THE DEADLY FLUKE WORM.

An insidious worm called the fluke is causing losses among the sheep in Great Britain actually exceeding, in the aggregate, the cost of any of the wars which have figured in the indictment upon which the Tory Ministry is said to have been found guilty. In some parts of England, chiefly in the southwestern province, whole flocks have perished, and not a sheep is sound.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular monthly meeting of the Lancaster County Agricultural and Horticultural Society was held on Monday afternoon, September 6th, in their rooms in this city, and the attendance was unusually large.

The following members and visitors were in attendance: Joseph F. Witmer, Paradise; Henry M. Engle, Marietta; Martin D. Kendig, Manor; W. W. Griest, city; C. A. Gast, city; F. R. Diffenderffer, city; Calvin Cooper, Bird-in-Hand; Dr. C. A. Greene, city; J. C. Linville, Salisbury; Johnson Miller, Warwick; J. M. Johnston, city; Wm. H. Brosius, Drumore; Wm. McComsey, city; Peter Hershey, city; John H. Landis, Manor; Simon P. Eby, city; I. L. Landis, city; P. S. Reist, Lititz; E. S. Hoover, city; Daniel Smeych, city; C. L. Hunsecker, Manheim; Jacob Bollinger, Warwick; A. F. Hostetter, city; Jacob B. Garber, Columbia; Amos Groff, Martic; Geo. W. Mason, city.

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

Crop Reports.

Henry M. Engle reported that in his section the drouth during the month of August had exercised a serious effect on the pasture fields, late planted corn, and on nearly all the fruits, the rainfall for the month having been but 2 1-16 inches. Peaches, however, were good, abundant, and consequently cheap. Apples were very fine, but the coddling moth in connection with the drouth was causing a great many to drop, and if the drouth continued not many winter apples could be expected. Grapes, too, were fine, but the bees and the birds were very hard on them. He could not defend the bees any longer, and could not agree with those who say the bee had not the power to puncture the skins of the grape. He had tried the experiment of placing paper bags around a number of perfect bunches, but the bees gained an entrance and entirely destroyed the fruit. In one bag he found twenty bees and no wasps.

Calvin Cooper said he had to add his condemnation of the bees. They had destroyed all of his grapes. If they continue to increase there would be no fruit in a few years. Apples are dropping prematurely, though not much affected by the coddling moth.

Johnson Miller reported a similar state of crops in Warwick as Mr. Engle's report. He said the wasps, however, did more injury to his grapes than the bees. He said those who had sowed cloverseed early have no clover. The wheat crop produced less bushels than was expected. Corn promises well, and although the ears may be shorter, there were more stalks that contained two ears than in former seasons. Pasture was plentiful, but that was probably owing to the fact that fewer cattle were kept.

J. C. Linville also went for the bees, and although he kept them, they went for his grapes vigorously. A short time ago he thought the corn crop would be the largest ever grown in his section, but he has changed his mind, as he has discovered that many ears have not filled out to the end. Nevertheless the crop will be large. The extreme production of wheat was 16 and 30 bushels to the acre; average about 20 bushels.

Wm. H. Brosius, of Drumore, said the winter apples, like everything else this season, are ripening earlier, and are consequently dropping. The wheat crop was good; corn above the average, and enough grass left for pasture.

Mr. Bollinger, of Warwick, reported the potato crop above the average, and the corn crop the best he had ever grown.

Johnson Miller made a statement in regard to an experiment he had made in attempting to reset his fields in clover, that sown last spring not having grown. He harrowed and sowed an eleven acre field, then rolled it. The seed did not sprout. A three acre lot which he sowed on the same day, but neither rolled nor harrowed, had considerable grass on it.

Martin D. Kendig, of Manor, sowed a field in clover on August 1. It did not grow. Corn good; early tobacco good, but late not grown out; about 60 per cent. cut and housed. No kinds of fruits keep any length of time. The drouth was affecting the wells. Rain fall for August, 2 3-10 inches.

A Suggestion.

Dr. C. A. Greene said he would like to make a suggestion, and if followed out, the question, "Do bees sting fruit?" could be settled in another year. It was simply to have gauze bags made and tie them around perfect bunches of grapes after placing a number of bees in the bags. Then watch them and see for yourself if the bees puncture the grapes.

An Essay on Insects.

Dr. Greene next read a lengthy essay on "Insects destructive to vegetation." He treated of the habits of a large number of depredating insects and gave recipes for their annihilation, some of which he could vouch for through experience, and others he had received from gentlemen who had found them efficacious. A vote of thanks was tendered the doctor, after which he said he proposed reading another paper on the same subject at the next meeting of the society.

The Yellows in Peach Trees.

Dr. Greene's essay having contained a prescription for the curing of yellows in peach trees, which he pronounced good, Henry M. Engle said he doubted if the disease could be cured. He preferred cutting the affected trees down. Mr. Cooper had tried severe or "buck" pruning on some trees last spring, but could not yet tell if the experiment would succeed. The pruned trees had a healthy appearance, however. Mr. Linville preferred preventing the disease, and this he did by placing a peck of wood ashes in a hole dug around the roots.

Referred Questions.

"Ought farmers to be exempt from taxation to the amount of their indebtedness," was answered by Peter Hershey. He thought they should be exempt from the taxation for State purposes, as the farmer must pay interest on the amount of his indebtedness.

Mr. Linville said Mr. Hershey had given the popular view, but it placed the farmers on an unequal footing, as those in better circumstances would have to pay more taxes.

Dr. Greene thought it would tend to create fraud, as farmers would all place mortgages on their farms to avoid taxation, and place their money in untaxable bonds.

The question was discussed at great length, scarcely two members agreeing, and was finally dropped.

"The Paper Moth."

"How can the paper moth most effectually be exterminated?" was Dr. Rathvon's question, but as he was unable to be present, H. M. Engle read a long paper on the subject, which had been handed him by the doctor. The moth was supposed to be a little silvery, swift-footed insect that preyed on paper, linens, books, etc., especially if kept in dark or damp places. Carbolized paper, turpentine and creosote were recommended to keep it down, but it was difficult to destroy; a sugar-baited trap, in the nature of a spittoon, was also recommended to catch the insect. The best remedy, however, was to keep rooms dry and well lighted, when the moth would take his departure.

A Discussion on Grangers.

"Has the grange movement been successful?" was answered by Johnson Miller, at considerable length. The movement, he said, was started in Washington in December, 1867, and, like all newfangled notions, spread very rapidly. Its object was to cripple railroad monopolies and do away with middlemen. Politics was excluded, but a distinct object was to get as many Grangers into Congress and into the State Legislatures as possible; but with all the excitement in the thirteen years of its existence we have fewer farmers in Congress than we had fifty years ago, and the Grange movement cannot change it. The only way to get farmers elected to Congress is for the true, good farmers who don't go into secret societies to go to the polls on election day and express their honest opinions without being led by ringsters and roosters. In regard to the rail road monopolies, it costs as much to ship a car load of cattle from Pittsburg as it ever did, taking into consideration the difference in money value of every other article. So, also, in regard to middlemen, the country is swarming with them. The movement has been of no benefit to the country at large, and the speaker doubted if it has been to the individual members of the society.

Henry M. Engle said he *had* been a Granger, and if farmers could get at the facts of the progression made in farming through the Grange movement they would not condemn it so heartily. Farmers and their wives, especially in the West, have learned more of agriculture and mercantile pursuits through their social intercourse in the Grange, and have to a certain extent broken up the extortions of middlemen.

Mr. Hunsecker said those who think govern those who toil, and the discussions in the Granges have set farmers to thinking, and others have profited largely by their progression through the examples set them by Grangers.

Mr. Brosius argued that any combination that injures any industry is a detriment to the community. The farmer must support every industry. The Grangers, in their blindness, attempted to injure the great railroad corporations of the West, and yet if it had not been for these same corporations the western lands would be but a wilderness to-day. The speaker claimed that the Pennsylvania Railroad had done more for this State than anything in it, by investing its millions of capital in assisting branch lines, thus giving the farmers in every community an easy outlet for their products in transporting to market.

E. S. Hoover spoke of the social and intellectual improvement made among the younger members of the society, and mentioned a number of instances of this nature that had come under his observation.

The question was further argued by a number of members, Mr. Hunsecker contending for the election of farmers to the Legislature, saying that since the adoption of the New Constitution but one farmer had been sent to represent the Northern district—that one was Gantz, and "he had made an ass of himself;" to which Mr. Miller retorted that this society was doing all it could in the direction—it had five members striving for the honor, but all had so far failed to succeed.

Miscellaneous.

John H. Landis added the transactions of the Wisconsin State Agricultural Society '79-80 to the library.

The President appointed Messrs. Henry M. Engle, Daniel Smeych, Calvin Cooper, Casper Hiller and Levi S. Reist, Committee on Nomenclature, and the committee at once proceeded to an examination of the exhibition of fruit.

Ex-Coroner Amos Groff was proposed and elected a member of the society.

Reports of Fruit Committee.

Exhibited by M. D. Kendig: Mellinger apple, fine in quality and size; Crawford late peach, good; Sheldon, Howell, and Seckel pears, fair.

By H. M. Engle: Grapes, Goethe (Rogers 1,) Merrimac (Rogers 19,) and Salem (Rogers 52,) of excellent quality; Eumelan very good. Peaches, Parker, rather acid.

J. B. Garber, of Columbia, one of the oldest and most experienced horticulturists of the State, comprised in his collection quite a number of varieties not generally known. Among them quite a number of seedlings: A seedling of the Concord, not as good as the present seedling, No. 32, white, and fair quality. The champion three of Rickitt's seedlings of fair quality. Rogers No. 39, with a sprightly flavor. A seedling of Rogers 31, fair bunch and good quality. Salem, one of the best of Rogers numbers. Rogers 43; Croton, few better among white grapes; Delaware, a well-known favorite; Rogers No. 28; Cynthianna, too acid for desert; Rogers Nos. 9 and 33, both of good quality; Franklin, also a seedling of same, good size but sour.

John Rote, of Lancaster, presented a very handsome basket of peaches, fine appearance, for name, but slightly acid. Name not known to the committee, but thought to belong to the Old Mixon and Stump the World class, and might be a seedling of either of them.

Daniel Smeych, of Lancaster, Semer peach, one of the best of the new peaches, of most excellent flavor and good size. A large yellow seedling peach of good quality. Also, a seedling by his coal house, surpassing the Old Standard (Late Crawford) in quality and size. Seedling cling of fine appearance and large size. A white seedling, but too acid to recommend.

An imported yellow plum, name unknown, of good quality and fine appearance.

In grapes, as usual, he excels in fine bunches, Diana, Rogers 3, Black Hamburg and White Tokay of the best quality and appearance.

Most respectfully submitted,

H. M. ENGLE,
D. SMEYCH,
C. COOPER.

Questions for Next Meeting.

Should the farmers of Lancaster county produce their own sugar? referred to H. M. Engle.

Is close grazing injurious to pasture lands? to W. H. Brosius.

Ought farmers to encourage picnics? to M. D. Kendig.

There being no further business the society adjourned.

POULTRY ASSOCIATION.

The regular monthly meeting of the Lancaster County Poultry Society was held in their room over the City Hall, on Monday morning, September 6.

The following members and visitors were present: S. N. Warfel, Strasburg; J. B. Lichty, city; F. R. Diffenderffer, city; C. A. Gast, city; W. A. Schoen-

berger, city; H. M. Engle, Marietta, E. C. Brackbill, Strasburg; Chas. Lippold, city; Frank Griest, city; Chas. E. Long, city; J. M. Johnston, city; Joseph F. Witmer, Paradise; J. B. Long, city; J. F. Malone, Brickerville; John E. Reed, city; H. H. Tshudy, Lititz.

The minutes of the preceding meeting were read and approved.

Mr. Lichty read a report of the committee on premiums, showing the fowls upon which premiums will be awarded at the coming exhibition of the society.

On motion of Mr. Schoenberger, the Executive Committee was instructed to procure the necessary coops.

A motion was passed, authorizing the Executive Committee to make some effort to procure some specimens of Golden and Silver Pheasants for exhibition at the coming show.

The question of procuring an incubator for exhibition at the show was discussed. Mr. Lichty said that a gentleman of this city was manufacturing one which had so far proved a success, and thought the new and large machine he had under way could be secured.

On motion the Secretary was instructed to make inquiries in reference to procuring one or more incubators.

On motion the Executive Committee was authorized to procure a suitable room for holding the show, and report at the next meeting.

Dr. E. H. Witmer, of Nellsville, was elected a member of the society.

On motion of Mr. J. B. Long the society allowed the Executive Committee $55 for special premiums, $5 for the best coop of fowls in each class, and $5 for the best collection of pigeons.

On motion the society adjourned.

LINNÆAN SOCIETY.

The society met in the ante-room of the museum, on Saturday afternoon, August 28th, 1880, President Rev. Prof. Stahr in the chair, five members present and four visitors. After the usual preliminary business the following donations were made to the museum and library:

A germinated lemon seed was donated by Mrs. L. N. Zell. This, in itself, would seem to be an object of little importance were it not that this seed germinated in the stomach of Miss Annie Null, Nevin street, Lancaster city, and was thrown up from her stomach on the afternoon of August 24, 1880. It was given to Mrs. Zell by the family, and she has no doubt about the genuineness of the case.

A bottle of the larger and more conspicuous insects, collected by Dr. M. L. Davis, in the vicinity of Millersville, containing specimens of *Copris*, *Allorhina*, *Passalus*, *Cybister*, *Silpha*, *Pelidnota*, *Calosoma*, *Clytus*, *Lachnosterna*, *Cicada*, *Spectrum*, *Tabanus*, *Phylloptera*, *Pimpla*, *Prionus* and *Corydalus*; also one Arachind (*Mygale*).

Dr. Davis also collected, in the same locality, a number of lepidopterous insects, including the genera *Papilio*, *Philampelis*, *Deilephila*, *Spilosoma*, *Noctua*, *Tortrix*, *Eudryas*, *Agrotis*, *Sphinx*, *Catocala* and *Saturnia*.

Three stone spear-heads, one arrow-head and a crystal of quartz, were donated by Mr. John Prior. These were collected on the banks of the Conestoga, about fifty years ago, by Hannah Stark, a colored woman now eighty years old, who gave them to Mr. Prior.

A fine specimen of *Phryganosoma* ——— was donated by Mr. Martin K. Mylin, of Gordonville, Lancaster, county, Pa. This animal was sent from Chicago to the donor, but it evidently does not belong to that locality, and most likely was brought from New Mexico, or one of the farther western States, if not South California. This is evidently a different species from any in our collection, unless the distinctions are sexual.

A full grown specimen of the larva of the the "Saddle-back Moth," (*Empretia Stimula*), from office of the *Examiner*. This insect seems to have been more numerous this season than usual, and specimens have been found in different localities. A specimen was sent up from North Carolina, which is either a variety of ours or a new species. Only one species of the genus is described in "Morris's synopsis of Lepidoptera," and that is the one frequently found in this locality. See the Farmer for August.

A small box of the seeds of a fruit which the vender of it called *Sapidilo sapilo*, from the East Indies. It has the form of an orange, a greenish color and reddish sweet pulp. Externally it has a russet appearance and as an edible is not particularly desirable, either in appearance or taste. In its general appearance it is not much unlike a pomegranate.

A singular abnormal growth of asparagus. This had a very broad stem, which grew up in perfect spiral form, but it has shrunk very much in drying.

A bottle containing a "water newt" and a large number of "caddice worms" and their singular cases, constructed out of small fragments of rock woven together with silk, from "Cold Spring," on "Cob Hill," near the country residence of Gen. Steinman, Martic township, Lancaster county, Pa., collected by J. B. Kevinski, July 27, 1880.

Donations to the Library.

A copy of the *Reynolds Memorial*, containing addresses delivered before the "Historical Society of Pennsylvania," upon the occasion of the presentation of a portrait of Major General John F. Reynolds, 100 pp., royal octavo, bound in cloth with a portrait and two maps. Donated by the Pennsylvania Historical Society. An octavo pamphlet 72 pp., containing a list of the members' names of the "American Philosophical Society." Proceedings of the "American Philosophical Society," from July, 1878, to March, 1880, 87 pp., octavo, containing the celebration of the 100th anniversary of its incorporation. Parts 5, 6, 7 and 8 of the "*Official Gazette* of the United States patent office." "Industries of Pennsylvania," containing historical and descriptive review of Lancaster, Columbia and Mount Joy, 164 pp., royal octavo. Lancaster Farmer for August, 1880, eight catalogues and circulars of scientific and general literature.

His orical Collections.

Two envelopes containing thirty historical and biographical sketches.

Papers Read.

Notes on the Horned Toad, by Dr. Rathvon. Notes on a variety of Walking Fern, sent by Prof. A. T. G Apple, read by Rev. Prof. J. S. Stahr. Notes on the flora of the neighborhood of the haunted cottage, by Mrs. Zell. Adjourned.

AGRICULTURE.

Thorough Preparation for Wheat.

A fallow is the best preparation for wheat, especially on clay soil or land infested by weeds. But it is thought to require too much labor, so stubble is turned down. An improvement here can be made, as practice has demonstrated, by first using the cultivator, so as to get mellow soil to turn down. This is best done after a rain, when the ground works up fine. Plow and let it lie for several weeks, thus giving a chance for heat and air to act on the soil, working occasionally with harrow and roller, preceded by the cultivator, if required. In this way the soil throughout becomes fine and of equal texture, and is especially favorable to fall growth, giving the wheat a good start. If the soil lacks fertility, a coat of manure applied after sowing will supply the necessary enrichment, and action of the manure on the soil develops new plant food, aided by heat and moisture. In such case the manure should be fine and well rotted so as to mix well with the surface soil. This preparation is almost equal to fallowing, and is certain to establish the crop well and secure a good catch if grass seed is sown.

Turning down mellow soil is not sufficiently considered. In a fallow we get it; also, in replowing fall plowed land. The best root crop I ever knew was where the soil was deeply fined and then deeply turned under, the surface manured and thoroughly worked. And it is the same with wheat, which needs depth. Merely scratching the surface with the harrow, however fine it may make it, favors vegetation only a little and in the start. Besides, the thin coating of mellow soil is a poor mulch and soon gets packed, making a solid body of earth incapable of withstanding drouth. This fined, the case is entirely different. Moisture is now retained and the roots have free play. In preparing the ground thus for wheat it has been found that the roller is of important service. It gives greater density to the soil without packing it too much, leaving it so that air and water readily penetrate it. This treatment also lessens the weeds. Clay soil is more particularly benefited by it.—*Country Gentleman.*

Our Big Wheat Crop

Our last crop of wheat was supposed to be somewhere about 450,000 bushels (it is ridiculous to attempt to foot up within 1,000 bushels.) We had 30,000,000 of the old crop left over a year ago, against 10,000,000 bushels now, the old wheat being much more closely drained from the farm now than then. That is, the people of the United States have within twelve months consumed and sold some 470,000,000 bushels, and have practically none left to compete with the wheat of the new crop. It is exceedingly doubtful if that new crop will foot up more than 450,000,000 bushels, and if it should the overplus will not be a terrible burden to the people obliged to hold it over into another crop year. We have not at present any good reason to expect that the demands of Europe upon the United States for bread will be much, if any, smaller than a year ago. There is not, therefore, any present ground for alarm in regard to a superabundance of wheat. There is plenty of it; enough to kill the ambitions of those who would like to see Europe forced to pay more than fifty shillings a quarter for it; not enough to warrant the bearing of it to a point which will not pay for the cost of producing it. The people who are croaking about over production do the same thing every year. Twelve months ago they said we had some 80,000,000 bushels more than we could get rid of. They miscalculated the facts in the case to the extent of 200,000,000 bushels. That is enough to show that they could not then grasp the situation, and there is no reason to think that they are any more competent now. Fortunately their vaticinations do not seriously affect the matter. The wheat goes forward while statisticians are proving that there is no place for it to go, just as serenely as the moon rolled on when the dog was baying at it.—*Chicago Tribune.*

Sowing Grain.

We sow our grain too thick, just as we set our trees and shrubs and plant our corn too close. With land made mellow and level, and the seed distributed evenly and properly covered, half the quantity now used is a great abundance. The drill is a convincing proof of this. Here is the all-important condition of uniform covering present; and as all the seed grows, light seeding is necessary, if the seed is sound and undamaged. More attention to the seed is therefore called for, and in securing this, greater cleanness will follow. Our grain will eventually be drilled in, thus lessening the seed to about one-half. Even this will be reduced, for we sow too thick with the drill. Where the land is well prepared, as it should be, and the seed is all sound, broadcasting will admit of a reduction of nearly one-half, and the crop will be better. There will be larger straw, a larger and fuller head, and less disposition to lodge. More labor should be bestowed upon the seed bed, which enriches it, as well as improves it otherwise, and less seed sown, passing it first through the fanning mill with a full wind on, as the light or imperfect seeds make a feeble growth.—*Country Gentleman.*

Autumn Seeding to Grass.

It is the general custom to seed grass after some grass crops, as wheat, oats or barley; but when it is desired to get a field into grass in the quickest possible time this practice need not be followed, says the *American Agriculturist*. Grass and cloverseed may be sown this month with the probability of success. This is not without its risk; a dry spell may prevent the seed from germinating until the season of growth is pretty well passed, when only a poor "catch" will be obtained. A shelter to the young grass and clover plants that will protect them from the hot sun, and at the same time prevent the soil from becoming too dry, is very desirable. For this purpose no crop is better adapted than white turnips, which grows quickly, and with their broad leaves make a protection to the grass seed and young plants, and shade for the soil. For the good of the grass it is not best to have the turnips grow very large, otherwise there may be danger from smothering; but a fair yield of turnips may be secured with no danger to the grass. The turnips should be pulled early, at which time the clover will be well started, and will soon thicken up and cover the ground before winter sets in.

Salt on Wheat.

As seeding and cultivating a new wheat crop will soon be in order, suggestions on this head are also in order. The Indiana *Farmer* says that an experiment with salt on wheat was made this year by James A. McMurry, of Boone county, in that State. On one tract he applied "refuse salt," which he purchased for fifty cents per barrel, putting it on at the rate of 1,000 pounds to the acre on one tract; on another, 250 pounds; and the remainder of the field, which contained better soil than any other portion salted, was left untouched. All the grain was sown on the the same day, and the plowing and harrowing was the same in each case. The result was that the heads from the tract not treated with salt were shorter and greener than the others. The heads from the land receiving 500 and 1,000 pounds of salt per acre were from a half to three-quarters of an inch longer than those taken from the unsalted land, and had three grains to the line, while the other generally had two, the former grains also being heavier. The advantage of salt in soil is thus made apparent to an extent that each one may figure out for himself.

Raising Wheat.

A year and a half ago (says the Chicago *Times*,) Mr. Wilson, the financial and commercial writer of the London *Times*, ascertained that the cost of raising a quarter of wheat in England and Scotland was forty seven shillings sixpence to forty-eight shillings. In round figures this is $1.50 a bushel. Mr. Kendall, one of the owners of a farm of 7,000 acres, eight miles west of Windom, Minn., furnished a writer, for the *Atlantic Monthly* last fall with a detailed statement of the cost of wheat-raising on his farm. From this statement it appears that, including 10 per cent. interest on the permanent investments, and 25 per cent. for the wear and tear of tools, machinery and stock, hauling to the railroad, and freight to Chicago, the cost was $9.70 per acre. As the average yield was twenty bushels an acre, this

made the wheat cost 48 cents a bushel delivered in this city. Mr. Dalrymple's estimate of the cost of raising wheat on his celebrated farm in Dakota was even less than this.

Mr. G. W. Buell, of Greeley, Colorado, has furnished the public with a statement of what it cost him to raise sixty-five acres of wheat last year. Without any allowance for interest on the investment, which could not have been very high, considering the small cost of land, the cost was $435.93 for 1,096 bushels in the bin. This is about 40 cents a bushel, or $6.62 an acre.

The agricultural reports of Kansas give the cost of different crops in many localities. Three pieces of winter wheat in Edwards, Jewell and Ottawa counties, harvested in 1878, cost respectively $7.14, $7.58½, and $7.30 per acre, including seed, labor and harvesting, but not including interest on the investment. On these three tracts the yields were respectively thirty-nine, fifty-seven and forty-four and a half bushels per acre. These are exceptionally large yields, but, taking sixteen bushels as the average yield of an acre, and many counties in Kansas have averaged twenty-two, the cost of the wheat would have been a little over forty-five cents a bushel.

The cost of carrying wheat from Chicago to Liverpool was estimated by Mr. Wilson, in an article already referred to, as less than 30 cents a bushel. A detailed statement lately published in this city, including expenses in Chicago and Liverpool, put it at 42¾ cents.

Raising Wheat in Kansas.

Mr. Jacob A. Mory, of Moryville, Berks county, who owns a tract of 280 acres of clear land near Sterling, Rice county, Kansas, tried the experiment of raising wheat upon his farm last year and again this year, but his success was not encouraging. In 1879 he had 200 acres of land in wheat, but it was so poor that he did not cut it all, and this year he had again about the same number of acres of grain, but the crop is a poor one. He attributes the failure to extremely dry weather, but is somewhat discouraged with Kansas farming.

HORTICULTURE.

The Apple Crop this Year.

The statements we have from almost over the entire apple-growing regions of the country are favorable for the best apple crop in many years. Of course there are regions where it will be short, and some where the fruit has suffered from the effects of insects; but in general the trees are not only well-laden with fruit, but it is of large size and with more than the usual freedom from the attacks of their common enemies. In the counties around Philadelphia, while we have known the crop to be as abundant, we do not remember the specimens to be larger or more perfect. We saw the other day a fine, symmetrical tree loaded with that most beautiful apple and the very best of the whole catalogue—the "American Summer Pearmain." It was quite beyond our knowledge that the variety would "do" here in Pennsylvania. Pomologists told us it would not. But here it was, larger and more perfect and of higher quality than we have even seen or eaten of in Delaware or elsewhere. Here, too, in Pennsylvania, before the middle of August, it was perfectly ripe, and would be preferred to almost any apple that grows. At least we would prefer it.

Some thirty years ago, being at St. Georges, Delaware, on a fishing excursion, we came across this apple for the first time and made arrangements the following spring to be furnished with a number of grafts. These we set on a dwarf apple tree, and the following year we distributed grafts among friends in Philadelphia, Montgomery, Bucks and Chester counties. It may be that tree above referred to came from our own stock; and if it should be, it is the only one of which we receive any information. If there are any others we should like to hear of them. —*Germantown Telegraph.*

California Fruit Crop.

The fruit crop in the Santa Clara Valley is much smaller than for several years. The Superintendent of the San Jose Cannery says that they will not be able to put up one-half as much fruit as was expected, as they cannot get it insufficient quantities. They are at present working about 150 hands, not one-half of the force they usually run at this time of the year. They are now canning apricots and blackberries, but will soon change to other fruits. The canning season will last until the first of November—later than ever before. The tinners at this factory are making at present about 6,000 cans per day, but 18,000 can be turned out in a day when fruit is plentiful. At the Golden Gate Cannery it is hard to get sufficient fruit. There is a large demand for pears, and the crop is unusually small and of an inferior quality. The supply of fruit in this county does not reach one-fourth the demand. Orchardists who have a good crop of fruit this year, have realized a handsome profit. One, it is estimated, will clear $9,000 from his crop.

When it is considered that the famous vineyards and orchards of Italy and southern France have hitherto supplied the demand of Europe, to the exclusion of the peaches and pears of the Middle Atlantic States, and the oranges of the South, and that, in view of these facts California, and especially Santa Clara Valley, comes forward as a successful competitor, there is cause for congratulation.—*San Jose Mercury.*

Tree Pruning.

The tree butcher, who passes himself off for a pruner, deserves imprisonment the remainder of his days. In pruning fruit trees there are several objects. One of these is to have the top proportioned to the strength of the trunk and roots; another is to make the tree shapely; a third is to remove injured, diseased and chafing twigs and limbs, and fourth to improve the quality of the fruit by preventing, as the trees are apt to in this climate and country, an over-production. The butcher to whom we refer has no idea of any of these things. With his saw and his pruning knife he cuts and whittles until the object of his apparent wrath is neither tree, bush nor anything else. The whole top is removed, and in place of a height of twenty or thirty feet that a fifteen or twenty-year-old tree should have, it is reduced to eight or ten; and in place of far-reaching, graceful limbs it is left with a number of knobs or short, thick, leafless stumps, reaching out from the trunk from six inches to three feet. You can find these trees all over the country, and wherever you find them you can discover the loss of beauty at once and easily approximate the tremendous loss of fruit this ruthless destroyer has effected. He accomplishes none of the objects named but one, and that is prevention of over-production, and this he does in the worst manner possible, and in a way to justify the old saying, that "the remedy is worse than the disease."

Cultivating Peach Orchards.

The peach tree is more sensitive to neglect and retarded in growth in grass, as well as stimulated by good cultivation, than any other of our common fruit trees. We have never seen a successful orchard in grass, unless subjected to constant and heavy manuring. We observe a recent statement by C. Engle, of Paw Paw, Michigan, that he has an orchard eighteen years old bearing abundant crops of excellent peaches through the influence of cultivation. He plows it early every spring to a depth of five or six inches. In two weeks he passes a heavy harrow both ways. Afterwards a two-horse cultivator, set to run four inches deep, is passed over the ground from three to five times. This ends the season's cultivation. Mr. Engle thinks there are more peaches of the best quality borne on these trees than any equal number elsewhere in the State. In allusion to the recommended practice of sowing buckwheat in peach orchards, instead of keeping them clean and mellow, Mr. E. says he would as soon think of sowing buckwheat among his corn to insure a heavier crop. The truth is, while every farmer knows that clean culture is absolutely essential to success in his common farm crops, many fail to apply the same knowledge to their more expensive orchards.—*Country Gentleman.*

Wash for Fruit Trees.

A correspondent of the *Fruit Recorder* writes as follows: "I notice in a recent issue a number of receipts for killing the codling moth. I have tried various remedies on my orchard, some of which have been suggested by scientific men. I will now give you my experience with them. My orchard consists of trees ranging from one to fifty years of age, and I find the codling moth ready for attack at any age. Last year, when pruning, I made a wash of my own and tried it with good results. The following ingredients composed the wash: One quart of lime, such as is used by the plasterers in 'whitecoating;' one peck of leached wood ashes, two pecks of cow manure, one quart of soft soap, and one large tablespoonful of Paris Green. I wet the mixture thoroughly, to make it like paste, beating it thoroughly until it became tough. I added twelve quarts of water, or enough to give the trees a thorough coating. I find on the old trees so washed that the old bark is dropped off and leaving the new bark perfectly smooth. On all the trees I have washed I see a great improvement."

How to Treat Starved Trees.

A starved tree, like a starved man, must be fed a little at a time. All the functions are weak in such a condition, and must be strengthened by exercise. By degrees the old wood should be replaced with new growth. Large limbs must not be removed until there is a return of vigor. It is like amputating a human limb, and can only be done safely when there is physical strength enough to bear the shock. It will take several seasons to bring about the process of renewal, but meantime the old trees will bear more fruit, until they will astonish the owner with the crops they yield. Long before a new orchard can become remunerative an old one may be made to renew its youth and pay handsomely for the outlay of time and trouble expended on it. A person who has never tried this process can hardly believe how effectually and successfully it can be accomplished. Trees of fifty or sixty years standing may be thoroughly rejuvenated by proper treatment, and however aged it may be, a tree will seldom fail to respond to careful attention.—*Rev. W. F. Clarke, in Canadian Farmer.*

Iron for Fruit Trees.

The scales which fly off from iron being worked at forges, iron trimmings, filings or other ferruginous material if worked into the soil about fruit trees, or the more minute particles spread thinly on the lawn, mixed with the earth or flower beds or in pots, are most valuable. They are especially valuable to the peach and pear, and in fact supply necessary ingredients to the soil. For colored flowers they heighten the bloom and increase the brilliancy of white or nearly white flowers of all the rose family.

FLORICULTURE.

A Chapter on Rose Culture.

Every rose will not come from the slip. Of the three great divisions into which the rose family is separated, namely, the damask, the noisette and the tea, the last two may be propagated with more or less readiness from the slip or by budding; the first only by dividing the roots and planting the seed, which later method is resorted to, however, only when it is desired to obtain new varieties.

The best season for taking rose slips is in June, just after the profuse bloom of early summer is over, although a person who knows exactly how to cut a slip may find good cuttings throughout the warm months. Judgment and discernment are needed for the selection at all seasons. I know a generous lady who sent her friends immense armfuls of boughs with hardly a real cutting upon them.

One should choose from a good vigorous branch of last year's growth a fresh shoot, containing two or three buds, such as will always be found more or less swollen at the base of the leaf stems. It should be cut from the parent branch diagonally, with a smooth, clean cut that will bring off a little of the old bark as well, in order to make the condition as favorable as possible for the formation of roots. Have ready a box or pot of rich mold. With a round, pointed stick make a hole several inches deep, and fill it up with clean sand; insert the end of the slip in this sand to the depth of one or two inches; be sure to make it firm in the soil, and the sand acting as a percolator for moisture, you may keep your slip well watered. You can soon see, by the swelling of the buds and the dropping off of the old leaves, whether the slip is indeed taking root, but do not attempt to remove it to the place where you would wish it permanently to remain until it has put out several sets of new leaves.

An ingenious way to raise a set of slips has been recommended by Mrs. London, which we have tried with unvarying success. It is to take an earthenware flower pot, gallon size, and fill it more than half full of broken potsherds, pebbles, bits of slate, or such things; now set in the middle, on top of the refuse materials, another similar flower pot, half-pint size, with the hole at its bottom stopped up tightly with a cork; let its mouth be even with that of the large outer one; fill up the interstices with silversand or other pure sand, and set in a row of slips all around, cut according to the directions given above. Keep the inner pot full of water all the time, but do not water the slips directly. In about six weeks your slips will have fine roots and can be potted. A hand-glass always hastens the process of rooting and enables you to take advantage of the sunshine; but if you are not provided with one be careful to keep your plants in the shade until they show certain signs of independence of life.

Roses need very rich soil to bring them to perfection, thriving best in a mixture of well-rotted manure, sand and garden loam, and to stint them of nourishment is indeed poor economy.

The Useful Sunflower.

In Southwestern Russia, between the Baltic and the Black Sea, the sunflower is universally cultivated in fields, gardens and borders, and every part of the plant is turned to practical account. A hundred pounds of seeds yield forty pounds of oil, and the pressed residue forms a wholesome food for cattle, as also do the leaves and the green stalks, cut up small, all being eagerly eaten. The fresh flowers, when a little short of full bloom, furnish a dish for the table which bears favorable comparison with the artichoke. They contain a large quantity of honey, and so prove an attraction to bees. The seeds are a valuable food for poultry; ground into flour, pastry and cakes can be made from them; and boiled in alum and water they yield a blue coloring matter. The carefully dried leaf is used as tobacco. The

seed receptacles are made into blotting paper, and the inner part of the stalk into a fine writing paper, the woody portions are consumed as fuel, and from the resulting ash valuable potash is obtained. Large plantations of them in swampy places are a protection against intermittent fever.—*Harper's Young People.*

Growing Flowers in the Shade.

This question is put to me every spring, says Peter Henderson, the celebrated florist, by scores of city people whose little patch which they wish to devote to flowers is so walled up by neighboring houses that the direct rays of the sun never touch it. But few plants will develope their flowers there, and none will do it as well as if it were lighted up by sunshine a part of the day. Fuchsias, pansies, forget-me-nots, violets, lobelias, lilies of the valley, phloxes, and other herbaceous plants whose native habitat is shady wood, will do best, but even these languish if denied all direct sunlight. The best effect in such situations is produced by ornamental leaved plants, the beauty of which is not dependent upon their flowers. Among these may be ranked the gold and silver variegated-leaved geraniums, achryanthus, alternantheras, begonias, caladiums, centauress, coleuses, etc., which, if planted so as to bring the various shades in contrast, produce a pleasing effect, which continues during the entire summer months, and is not surpassed by any display of flowers.

Use for Coffee Grounds.

Vick's Magazine recommends coffee grounds as manure. A lady from San Francisco lately received some plants from Mexico, and with the plants came the advice to fertilize them with waste coffee and coffee grounds. This was done, and the results were so satisfactory that the same treatment was tried on roses, and the effect was a healthy and vigorous growth, and more and better flowers and of richer colors.—*Western Rural.*

DOMESTIC ECONOMY.

Rag Carpets.

A lady of large experience, in making these carpets, says that her way of collecting materials for them is as follows: When a garment is laid aside for good, my practice is to rip it to pieces, wash thoroughly, and cut, sew, and wind it into balls. I have a tight barrel, with a paper spread over the bottom, and a sprinkling of fine tobacco scattered over it. I put my balls in the barrel, and every spring cut the rags at my leisure. The children can sew and wind them just as well as any one. I sprinkle fine tobacco over the balls, and tuck an old sheet over them, cover the barrel up tight, and it is all right till I get ready to add another contribution. In this way I get my rags ready and keep the house clear from an accumulation of old, dirty garments, that are a nuisance any way.

In making a carpet I allow a pound and a quarter of rags to fill a yard of cloth; for a room twenty-five feet square I calculate to have about thirty-five or thirty-six pounds of rags. If there are any odds or ends left over, they are woven into a rug, that can be spread before stoves or doors. *I never expend time or labor coloring my rags.* The last carpet I made had rags enough for seventy-eight yards, and I never felt the labor at all; it was done at odd jobs, and I was astonished to find I had such a quantity finished. Allow three knots and a half of warp to the yard. The labor of reeling and coloring the warp is the hardest part of the work for me. I know ever so many people who color and pass a whole season over a carpet; but when it is done, it is only a rag-carpet. The prettiest one I ever saw was just brown and blue, narrow stripes of each, and shaded from dark to light; a little black was woven in to give the dark contrast. One reason why we enjoy rag carpets is this: We are not afraid to use them, and when one is worn out we can make another just as good. Sweeping carpets wears them out faster than using them, by half. A stiff broom should never be used on carpets; picking up shreds and bits is the best way, and brush the dust off with a soft brush.—*Western Rural.*

Scrape the Feet.

Every careful housekeeper, with an eye to first causes, is much interested in the way feet—or rather feet-coverings—come in from out of doors. If boys did not have muddy boots, the cares of the house would be much lessened. But the boys are not the only ones that "bring in the dirt." Men folk are often very forgetful of the amount of work they may make by not attending to the simple matter of cleaning their boots and shoes. Every door step should be provided with a foot scraper, and a brush or broom, and every one, young or old, as he comes in, should take the time to use them before appearing on the carpet or clean floor. If a regular scraper—one made for the purpose—is not at hand, one can make one from a bit of hoop-iron, which is to be placed on a step or edge of the porch in a convenient place. It is well to provide a "mud-mat," which is simply strips an inch or so square—fence pickets will answer—screwed to three or four cross pieces, an inch apart; or a more elaborate one can be made be by stringing the slats upon fence wires. One with muddy boots is very apt to stamp and rub them on the steps or floor of the porch; a mud-mat will clean them more effectively, and save the porch hard wear. A very excellent mat may be made by boring holes in a board, and drawing corn-husks through the holes. Careful persons change their foot-gear when they enter the house to remain any length of time, a custom conducive not only to neatness, but so greatly to comfort, that is to be commended.—*Agriculturist.*

Do Not Neglect Your Wells.

Friend, you have a mud hole at your well? Go for it at once. Do not eat or sleep till it is removed. Take a hoe and drag out the mud and filth, and then fill the hole with dry soil or sand. After doing this, shut out the pigs and poultry from the well, and keep them out. If the curb is broken or rotted down, replace with a new one. After doing this, scrape away the grass and surface soil around the well, and replace with a layer of sand and gravel. If, from the character of the land, your well ever fills with water, cut a ditch six feet deep all around it, at the distance of a few yards, and have an outlet from this to take off the water. The water in the well will not, after this, rise higher than the bottom of the ditch. If your water is muddy and impure, throw in a peck of lime to purify it. If animalcule appear in the water, throw in a half gallon of salt to make them settle to the bottom. And it is worth while to take some pains to fix up some conveniences at your well. A bench to set the bucket on while it is being filled, and a handy and easy way to get the water, and a smooth, dry path from the well to the kitchen—these things will make so much easier the task of your wives and daughters. Farmers, do not neglect your wells a single day longer, but see that all about them is neat and tidy, and determine to keep it so.—*Maryland Farmer.*

Protection Against Mosquitoes.

Quassia is used in medicine as a powerful tonic, and the chips are sold by chemists from sixpence to a shilling a pound. The tree is indigenous to the West Indies and to South America. A young friend of mine, severely bitten by mosquitoes, and unwilling to be seen so disfigured, sent for quassia chips, and had boiling water poured upon them. At night, after washing, she dipped her hands into the quassia water, and left it to dry on her face. This was a perfect protection, and continued to be so whenever applied. At the approach of winter, when flies and gnats get into houses, and sometimes bite venomously, a grandchild of mine, eighteen months old, was thus attacked. I gave the nurse some of my weak solution of quassia to be left to dry on his face, and he was not bitten again. It is innocuous to children, and it may be a protection also against bed insects, which I have not had the opportunity of trying. When the solution of the quassia is strong it is well known to be an active fly poison, and is mixed with sugar to attract flies, but this is not strong enough to kill at once.—*Scientific American.*

Farm Life.

A writer in *Scribner's Magazine* asserts that the farmer, having the most sane and natural occupation, ought to find life pleasant. He alone, strictly speaking, has a home. How can a man take root and thrive without land? He writes his history upon his field. How many ties, how many resources he has: his friendship with his cattle, his team, his dog, his trees; the satisfaction in his growing crops, in his improved fields; his intimacy which Nature, with bird and beast, and with the quickening elemental forces; his co-operations with the clouds, sun, seasons, heat, wind, rain and frost. Nothing will take the various social distempers with the city and artificial life breed, out of a man, like farming—like direct and loving contact with the soil. It draws out the poison. It humbles him, teaches him patience and reverence, and restores the proper tone to his system. Cling to the farm, make much of it, put yourself into it, bestow your heart and your brain upon it, so that it shall savor of you and radiate your virtue after your day's work is done.

Keeping Cider Sweet.

As apples are likely to be plentiful this fall, a considerable quantity will be made into cider, and the inquiry will frequently be made: "How can I preserve my cider sweet?" If the following directions are followed, cider may be preserved sweet for an indefinite period:

First, take only well-ripened, sound apples, and crush and extract the juice. Let the pomace lie a few hours before pressing. Have everything with which the pomace or juice comes in contact sweet and clean. Strain the juice through a filter, as follows: On the top put a layer of clean straw, and below fine gravel, or coarse sand washed clean of dirt, and beneath flannel cloth. Such a filter will take out all particles of pomace, etc., which cause decay. Having the apple juice pure, put it in a kettle and bring it to a boil, skimming off all scum which rises during the process. While the cider is still hot or warm can or bottle it as you would fruit to preserve it. Bottles may be made tight by corking and sealing the same by dipping the corks in a composition of resin and tallow melted. The main thing in the preservation is to keep it from the air perfectly.

The juice of grapes and other fruits may be preserved in the same way. It is essential in all these that the product be kept in a cool place, of near even temperature. Unfermented wine, or juice of the grape, is made and preserved in this way, and is better and more healthful than wine made in any other way.—*Country Gentleman.*

Food for Fat People.

There are three classes of food, the oils, sweets, and starches, the special office of which is to support the animal heat and produce fat, having little or no influence in promoting strength of muscle or endurance. If the fat, therefore, would use less fat and more of lean meats, fish and fowl, less of fine flour and more of the whole product of the grains—except the hulls—less of the sweets, particularly in warm weather, and more of the fruit acids in a mild form, as in apple, sleep less, be less indolent and labor more in the open air, the fat would disappear to a certain extent at least, with no loss of real health.

In food we have almost a perfect control in this matter, far better than we can have in the use of drugs. If we have too much fat and too little muscle, we have simply to use less of the fat-forming elements, and more of the muscle food, such as lean meats, fish and fowl, and the darker portions of grains, ect., with peas and beans.—*Medical Journal.*

Petroleum for Rustic Work.

Here is room for great improvement. We see on every hand hondsome rustic work falling to decay and becoming distorted by age. It is commonly made of a kind of wood which does not last long. Soak it thoroughly with crude petroleum when new, and it will remain unchanged indefinitely. A rustic summer-house on a shaded part of our grounds would have been unusually exposed to dampness and decay had it not been prevented, a dozen years ago, by petroleum. The peculiar brown color imparted by a mixture of the heavy oil remains unchanged; and a lattice-work of pine lath, a fourth of an inch thick, fully exposed to dampness and weather, is as sound and unworn as ever. The oil is now so cheap that there is no excuse for omitting its application, and it may be rapidly and easily brushed over the surface and sunk into the pores with a whitewash brush. Apply it heavily.

How to Cook Green Corn.

The following seasonable advice is given by a lady: The kernels of sweet corn somewhat resemble the semi-transparency of pearls. Many persons think green corn will cause sickness if nof well cooked; it really requires but little cooking. When the milk in the kernels is "set," it is sufficiently done, longer cooking toughens it. The ears should be put in a pot where the water is already boiling, and in from 7 to 10 minutes it is ready to serve. I took some corn to a friend's house and saw her put it on a great quantity of cold water and then set it on the stove to cook for dinner. In about forty minutes it was served, toughened and most of its sweetness left in the water.—*Village Record.*

Dusting Caps.

I have lately made one, and chose plain dark calico, using an oval piece twenty-two inches long and eighteen inches wide; this was bound with gray plaid, and another strip half an inch wide was put on an inch from the edge. Under this last I ran rubber cord, and finished with a knot of ribbon in front. I wear it while doing all my morning work, for it not only protects my hair from every particle of dust, but hides its semi-roughness from all early and inopportune callers. Besides this, it is very easily drawn down over my temples while standing in a sudden draught of air, for I have learned that neuralgic nerves are very sensitive.

How to Find Buyers.

The farmer who always takes particular pains to put up his produce in neat attractive packages, and never mixes the second with the first quality, will have but little time to find good men ready to buy all his products and pay him a fair price; but he who mixes three qualities together, and tries to sell them as first quality, will always be troubled to find buyers, and usually have to sell at low prices.

Household Recipes.

Fig Pudding.—Chop half a pound of figs very finely; mix them with one-fourth pound of coarse sugar, a tablespoonful of molasses, four tablespoonsful of milk, half a pound of flour, a quarter of a pound of suet, an egg, and a pinch of grated nutmeg; put the pudding into a buttered mold and boil five hours.

To Cook Turnips.—Pare, slice, cut in dice an inch square, boil until nearly done, in as little water as possible; to one quart of turnips add one tablespoonful of sugar, salt to make palatable; when they are boiled as dry as possible add two or three spoonsful of cream and a beaten egg, and serve. Excellent.

Blacking Stoves.—The fine polish given stoves by those skilled in the art is produced as follows: Have a thin mixture of black varnish and turpentine; apply this with a paint or varnish brush to a portion of the stove, then with a cloth dust this over with pulverized British lustre or stove polish, then rub with dry brush. The stove must be perfectly cold. The stove dealers buy the pulverized stove polish, which is carburet of iron, in twenty-five pound packages. The process conducted in this manner is quite brief, but gives beautiful results.

Coffee Custard.—Make a good, strong extract of coffee—by dripping it as slowly as possible—for ten people you will want two cupsful; take eight of the same measures of milk, and beat into the milk the yolks of six eggs; add three ounces of powdered sugar; mix into this two cupsful of coffee; as coffee differs in strength better taste to see that it is sweet enough; pour the mixture into cups, and put the cups in a not too deep pan with boiling water; the level of the water ought not stand higher than half the cup; do not try and boil the water too hard; about 15 minutes of boiling is necessary.

Sour Milk Cheese (Smear Case).—Take some milk, set it on the back of the stove, where it will heat very slowly; if heated quickly it will curdle; when it wheys sufficiently strain through a colander till as dry as possible, then pour the curd into a pan or into the cheese bag, and wash thoroughly with cold water; if it has been heated sufficiently it will not dissolve; tie and hang bag up to drain; when dry add sweet cream enough to make it soft; salt to taste, set it on ice and seave at tea time. If it is scalded too much, or if the milk is too sour, it will be crumbly and not fit to eat.

To Bleach.—Into eight quarts of warm water put one pound of chloride of lime; stir with a stick a few minutes, then strain through a bag of coarse muslin, working it with the hand to dissolve thoroughly. Add to this five bucketfuls of warm water, stir it well, and put in the muslin; let it remain in one hour, turning it over occasionally that every part may get thoroughly bleached. When taken out, wash well in two waters to remove the lime, rinse and dry. This quantity will bleach twenty-five yards of yard-wide muslin. This muslin will bleach more evenly and quickly if it has been thoroughly wet and dried before bleaching.

Pumpkin Pie.—Cut the pumpkin into thin slices and boil until tender in as little water as possible; watch carefully that it does not scorch; drain off all the water—mash, and rub through a sieve, adding, while warm, a small piece of butter. To every quart of the pumpkin, after mashing, add one quart of new milk and four eggs, the yolks and whites beaten separately; white sugar to taste, and cinnamon and nutmeg as desired. The oven in which they are baked must be hot or they will not brown. It is as well to beat the batter scalding hot before pouring into the pie dishes.

Potato Croquet.—One pound mashed potato; one egg; one tablespoonful of milk; a little pepper and salt; a few spoonfuls of bread crumbs and cracker dust. The potatoes must be mashed when thoroughly dry. When mashed throw in a small quantity of salt, a little pepper and the yolk of an egg. Stir the yolk with the potatoes over the fire till thoroughly dry. Flour the board well, bake a little of the mashed potatoes and roll lightly in the flour; make them into any shape. When the croquet is well formed, beat well up the white of an egg; roll the croquet in it; throw over all a little bread crumb or cracker dust.

Pot-au-Feu.—Pot-au-feu requires four pounds of beef, six quarts of water, eight ounce of carrot, eight ounces of turnip, same quantity of onions, and three ounces of celery and cloves. After once or twice making this soup, the cook will be able to judge by the size of the vegetables the required quantity, but weighing is advisable at first, as much depends on perfect proportion. The meat must slowly simmer for three hours, and then add the vegetables, not before; simmer till done. The pot in which the bouillon is made should have a very closely fitting lid. Quick boiling and careless skimming are the causes of cloudy bouillon, supposing, as a matter of course, that all the vegetables have been perfectly cleansed.

Flour Gems, or Puffs.—Drop into pint of milk one egg and a little salt. Stir in gradually one pint of flour. Beat this batter till quite light and free from lumps or a particle of unwet flour. Let them stand on the top of the stove a few minutes, after having put the batter into hot, buttered gem-pans, then put into the oven and bake quickly. Cornmeal or Graham can be made in the same way—only add two tablespoonsful of flour to cornmeal; or, if gems are desired for dessert they need a little more care, should be made richer. Melt three ounces of butter in a pint of cream. Let it stand till cold, then add to it two ounces of flour, beaten till smooth. Beat the yolks of four eggs with two ounces of white sugar. Spice to taste. Add the whites of two eggs, beaten very light, the last thing. Bake in gem-pans or cups, and serve the instant they are done, as they will fall and become heavy if left standing. Eat with any jam that is agreeable.

Apple Dumplings.—Take some finely sifted flour, say ½ lb., and half the quantity of suet, (¼ lb.) very finely shred, and well freed from skin. Mix the suet and flour, add a pinch of salt and half a teaspoonful of baking powder, with sufficient cold water or milk to make it of the right consistency. Knead it well, and roll it out to the thickness required. Divide this paste into as many pieces as are required for the dumplings. Take some large-sized apples, peel, core, sugar and a clove. Cover them with the paste, and join the edges carefully. Tie each dumpling up in a floured cloth, boil about an hour. Untie them carefully, and turn them out without breaking them; serve with cream and sugar.

N. B.—A little currant jelly may be substituted for the butter, sugar and clove.

Barley Pudding.—Wash half a pint of pearl barley, put it into a stewpan with three pints of milk, a quarter of a pound of sugar and a little nutmeg at the corner of the stove; when properly swelled take it out, flavor to taste, add four eggs and boil in a basin for one hour; serve with black cherry arrowroot sauce.

Pathenia Pudding.—One quart of milk; five eggs; five tablespoonsful of flour; bring the milk to a boil, reserving enough to wet the flour; then stir in the wet flour while hot; when cool stir in the beaten eggs, reserving the whites of two; bake one-half hour, and when cool spread over an icing made from the beaten whites and powdered sugar.

Lemon Syrup.—The lemon syrup bought at the stores can be made at home much cheaper. Take a pound of Havana sugar, boil it in water down to a quart, drop in the white of an egg to clarify it, strain it, add one quarter of an ounce of tartaric or citric acid. If you do not find it sour enough after it has stood two or three days, add more of the acid. A few drops of oil of lemon improve it.

Yeast from Grape Leaves.—Grape leaves make yeast in some respects superior to hops, as the bread rises sooner, and has not the peculiar taste which many object to in that made from hops. Use eight or ten leaves for a quart of yeast; boil them for about ten minutes, and then pour the hot liquor on the flour, the quantity of the latter being determined by whether the yeast is wanted thick or thin. Use hop yeast to raise it to begin with, and afterwards that made of grape leaves. Dried leaves will be as good as fresh. If a dark film appears upon the surface when rising, a little stirring will obviate it.

Rice Cakes.—Boil rice until it is soft, and while warm make it into cakes. Dip the cakes into a beaten egg, and then roll them in Indian meal till thoroughly coated. This done, fry them in bacon fat, which is better than butter for this purpose. Serve them with sauce, or with butter, or with cream and sugar.

Gumbo.—Take a nice fat chicken, cut up and put into a pan, and when fried brown, put in two quarts of finely sliced okra, four large tomatoes and two onions, peeled and chopped fine. Keep covered with water, and have the kettle tightly closed.

Veal Cheese.—Take a shoulder of veal, take out the bone, cut it in small pieces, with just water enough to cover it; stew until tender; take out all the pieces of gristle, mince it fine, and return to the liquor it was boiled in; then add one pound cold boiled pork chopped fine, one tablespoonful of salt, one teaspoonful each of pepper and mace, some sweet herbs, and two well-beaten eggs; put all into an earthen dish, with a plate on the top, and bake one hour. To be eaten cold.

Dish for Luncheon.—Take pieces of cold meats of any kind, chop fine; season with pepper and salt, just a little onion; break over the meat two or three eggs; add a small piece of butter; stir all together; pour it upon nicely buttered toast; serve hot; garnish with parsley.

A Stuffed Beefsteak.—Prepare a dressing of bread, scalded soft, and mixed with plenty of butter and a little pepper and salt. Lay it upon one side of a round of steak, cover with the other, and baste it down with needle and thread. Salt and pepper the outside of the steak, and place in a dripping pan with half an inch of water. When baked brown on one side turn and bake the other.

Feather Pillows.—Feather pillows can be cleansed and purified without removing the feathers by taking the pillows, laying them in the bath tub, and scrubbing them with a small scrubbing brush dipped in a solution of a tablespoonful of magical mixture to half a pail of warm water, and a little soap dissolved in it. Scrub them well on both sides, and then turn on the warm water and rinse them thoroughly. Lay them out on the grass to dry, turning them frequently; at the last pin them to the line for a number of days, and when quite dry beat them with a rod. This is to disentangle and lighten the feathers.

Beefsteak with Oyster Sauce.—The steak should be about an inch thick, tender and juicy. Have the grid iron hot and rub with a small piece of butter to prevent the meat sticking. Broil it carefully, and do not season it until done; then lay in a dish, cover tightly and keep it hot. In a very little juice stew twenty or thirty oysters; season and add a little cream; pour hot over the steak and serve.

Good Rye Bread.—One cup of yeast—one-half cup if new and strong—one quart of warm water, one small cup of molasses, one teaspoon of soda, and salt to taste. Stir in the rye flour with a pudding stick till you have a stiff dough. Grease your pan—a deep one is best; put the dough in, scraping pan and stick with a knife to avoid getting the sticky dough on your hands. Let it stand in a warm place over night or until light, then bake until done, from one and half to two hours.

Cork-soled boots, while admirable for walking purposes, do not make for children suitable shoes to wear to school where the child must sit with them on all day. They heat the feet unduly, rendering the wearer liable to take cold on going into a lower temperature. For school purposes a good walking shoe with double sole, to be worn with rubber overshoes in rainy weather, is preferred by many persons. The overshoes should be removed immediately on entering the house.

Live Stock.

A Hint.

A tripping or stumbling horse is never safe for the saddle or for driving. He may be a good horse for the farm, but if the habit is once formed, whether from disease or any defect, he should never be mounted or driven on the road.

To Make Good Stock.

"Good care makes good stock" is a maxim that has more truth in it than many professional breeders are willing to admit. It will not, indeed, work an entire transformation in the nature of an animal; it will not make a first-class beef animal of a Jersey cow, a race horse of a Clydesdale, a Merino sheep of a Cotswold, nor a Berkshire pig of a Suffolk—but good care is essential in order that any of the breeds of any kind of stock shall attain to their best estate.

Raising Calves.

A correspondent of the *Country Gentleman* has had most gratifying success in raising calves on a mixture consisting of fifty pounds of corn meal, fifty pounds of middlings, twenty-six pounds to the bushel, and five pounds of sugar, well mixed. Of this mixture three pounds were given daily to the two—one pound and a half to each meal, mixed with half a bucket of boiling water, and the bucket filled with skimmed milk. The calves were taken from the cow as soon as dropped.

A New Horse Distemper in Boston.

The horses in numerous private stables in Boston and vicinity are suffering from a species of throat distemper, which recently made its appearance. The muscles of the throat become so inflamed that in a short time the animal becomes incapable of swallowing. In a day or two after the muscles of the body are paralyzed, and death ensues. The cause is said to be the rainy and irregular weather of late, and no cure has been found. It is not thought likely to become epidemic.

Winter Calves.

A Wisconsin dairyman asks if there can be any profit in raising calves in winter. This question is now very pertinent since winter dairying is becoming common. Butter bears a higher price in winter, and this induces dairymen to have their calf dropped in fall. Some think the cold weather will add to the cost of keeping the calves, but this is probably a mistake, as the following considerations will show: The milk, after making butter in winter, is in better condition than in summer, as it is seldom sour, and may always be fed sweet. Calves kept in warm quarters will make more growth upon the same quantity of milk in winter than in summer, on account of its better quality, and because, being fed on hay, they seldom scour or have any trouble of the stomach.—*National Live Stock Journal.*

How to Get a Large Yield of Rich Milk.

If you desire to get a large yield of rich milk give your cows, every day, water slightly salted, in which bran has been stirred at the rate of one quart to two gallons of water. You will find, if you have not tried this daily practice, that your cow will give 25 per cent. more milk immediately under the effects of it, and she will become so accustomed to the diet as to refuse to drink clear water, unless very thirsty.

Health of Horses.

The health and comfort of horses have of late years been greatly improved by the better construction of stables. They are made more roomy and lofty, and provided with means of thorough ventilation. In many new stables, lofts are done away with, or the floor of the loft is kept well above the horses' heads, and ample shafts are introduced to convey away foul air. By perforated bricks and gratings under the mangers and elsewhere round the walls, and also by windows and ventilators, abundance of pure air is secured for the horses; while being introduced in moderate amount and from various directions, to come in without draught. Too much draught is almost an unknown stable luxury. To secure a constant supply of pure air, horses require more cubic space than they generally enjoy. Even when animals are stabled at night, a minimum of twelve hundred cubic feet should be allowed. In England the newer cavalry barracks give a minimum of fifteen hundred and nine feet, with a ground area of fully ninety square feet per horse, and the best hunting and carriage horses have more room.—*Journal of Chemistry.*

Harness Sores on Horses.

There are few things which cause more delay and trouble in farm work during these hot months of summer than the galls and sores that come upon the shoulders and backs of work horses. A vast amount of hard work must be done, and the animals are strong and well enough to do it, provided there are not these painful sores that their applying themselves to the labor. A horse with shoulder or back galls, or both, suffers pain when it is put into the harness. The direct cause of these sores is the friction to which the parts are subjected, combined with the excessive heat and great flow of sweat. Inflammation and chafing of the skin are produced much more readily in hot than in cold weather, because the conditions of greater friction are then present. The preventive is in reducing the friction to the least possible amount. In the first place, the harness must fit closely and smoothly to the form of the horse, that the weight of the load may be uniformly distributed over the surface beneath the harness. Secondly, the horse should be in a healthy state, that the muscles and skin may be of their normal toughness, and the sweating not unnaturally profuse. This involves the proper care and feeding of the horse. A poorly kept animal, or one not in good health, will become sore more readily than one in good health. When the sores are already formed a speedy cure is the thing needed. Sponge carefully the afflicted parts to remove all accumulations from sweat. Then bathe with a lotion of alum and tannin, with a little laudanum added. All pressure upon the sore should be removed by a proper adjustment of the harness, and, if necessary, keep the horse from work until cured.—*Agriculturist.*

Scours in Calves.

It has been my province for several years to take charge of the calves, and I have had very good luck, but find that when they first begin to eat sour milk they are generally apt to scour, and if the looseness is not checked, it reduces them. Now, as an ounce of preventive is better than a pound of cure, I use about a great spoonful of prepared chalk in their drink. I stir it into the milk, and they never mind it. One dose is sufficient as a general rule. Another good thing for the calves is occasionally to throw a shovelful of fresh earth upon the floor of the stable where they can see it. They will lick it up, and seem to enjoy it very much. Which they are old enough to be turned out, they generally help themselves to a few licks of earth every day. It seems to be a natural instinct, and something that they crave.

I used to give rennet, or a solution of rennet just as it is prepared for cheese making, when a calf scoured; a couple of spoonfuls in six quarts of milk; but I like the prepared chalk much better. It can be procured at any drug store at small cost; and it is a very handy thing to use, and has always proved very efficacious, not only in preventing, but also in curing the complaint. I think the earth is quite a necessary item, and as I have never seen anything written or printed about it, I have ventured to suggest that those who are raising calves should supply the little creatures with fresh earth, and see how much they relish it. I take it from the garden, and it is better to be moist than dry.

When I begin to feed meal to the calves I use wheat canaille, or shorts, preferring it to anything else. I take half a pint, pour boiling water on it in a pail, stir it well, put in a teaspoonful of salt, and then fill the pail (which holds ten quarts) with sour milk, and stir it well. I feed this twice a day, and give them good bright hay for dinner. They thrive well, and seem well satisfied with their rations.—*Farmer's Wife, in Country Gentleman.*

APIARY.

Autumn Management.

Mr. A. J. King, editor of the *Bee-Keepers' Magazine*, gives the following timely and sensible advice in the August number of that journal:

All successful apiarists know that to winter safely and have stocks in a condition in spring to avoid "spring dwindlings," preparations to secure these objects must be made during the summer and fall. At least three conditions must be complied with to accomplish the desired result. 1. Plenty of good sealed honey stored in the summer. 2. Plenty of young bees reared in the fall. 3. A warm hive which will retain heat, pass off all excess of moisture, and at the same time, except in the far north, permit the bees to fly out during the warm days frequently occurring in the latter part of winter and early spring. If these simple requirements are fully complied with we believe that nine-tenths of the maladies afflicting our bees, and an equal amount of the dismal howling of bee men (?) would at once disappear. This new industry would then assume an aspect at once inviting and lucrative. Honey stored in June and July is thicker and contains less acid than that stored later in the season, and for this reason is a better winter food than fall honey; hence during these months full frames of honey should be removed from the hives and be put away in a dark, dry and airy room for wintering purpoees, and their places in the hive be filled with frames full of comb foundation set in the centre of the hive; and if a dearth of honey in the flowers occurs, just feed a little syrup from best brown sugar each evening from the entrance of the hive, thus rapid breeding will be promoted, and by the time the fall flowers "spread their honey petals to the bees" you will have a perfect host of young, vigorous workers to store it away. And as those who are posted know that bees are not inclined to store honey in the boxes in fall, you should "take the hint" by using the extractor and always replacing the empty combs in the centre of the breeding department of the hive, a process which invariably excites the bees to the most intense activity, and which the "knowing ones" take advantage of and in consequence take thousands of pounds of honey, while you complainers either suck your fingers, or stand with your hands in your pockets wondering why your bees cluster on the outside of the hive and appear so lazy. When this fall harvest is going on, the queen will appropriate enough of the space in these centre frames of the empty comb to insure a sufficient number of the young bees to go into winter quarters with. Lastly, extract all the combs containing honey, and no brood to speak of, and set them away for use in early spring, and in their place put the frames full of summer stored honey. Now, with about six or seven frames in the centre of each hive, bring the porous, close-fitting division boards close up. Place a chaff cushion on top of the frames about four inches thick. Leave the air holes in each end of the cap open, contract the entrance to about one inch space, and your bees will pass the severest winters of this latitude on their summer stands, and begin breeding rapidly by the middle of March, when your empty combs should be brought into use for the queen to fill up with eggs. Feed a little regularly, and by the time the first honey harvest of the spring comes your stocks will be in condition to store it in the little boxes which they will now use freely. Thus, by the constant supply of young bees, the use of a good article of honey for winter, the absence of an over-supply of moisture in the hive, you have all the conditions to insure success. And if you will but follow out our plan given here in a nut shell, you will succeed nine times out of ten; but if you are too stingy to feed your bees when they need it, too timid to examine into their condition, too lazy or stupid to post yourself on the correct theory of bees in order to read their condition and know their needs as soon as you see the interior of the hive, or if you are afraid of steady hard work and imagine your bees "will work for nothing and board both themselves and you," then we advise you by all means to quit the business, for you will only disgrace it and bring unmerited contempt on our little favorites, the bees. We like custom and enjoy the profits arising from a large business, but not well enough to encourage a lot of blunderheads to engage in or continue a business for which they were never qualified.

LITERARY AND PERSONAL.

NEW FACTS IN A NEW FORM.—The enterprising editor whose ambition it is to keep pace with all the affairs of the day needs all possible data at his immediate command. One of the best helps in this direction is "The American Treasury of Facts," compiled by Hon. A. R. Spofford, Librarian of Congress, and published by Messrs. H. H. Warner & Co., proprietors of the renowned Safe Kidney and Liver Cure. This work contains a vast variety of national statistics, and is of great value to all who take an interest in American affairs. Much credit is, therefore, due to the compiler, as well as to Messrs. Warner & Co.

BREEDER'S LIVE STOCK JOURNAL.—A royal quarto journal of sixteen pages, illustrating the "Economy of production, and the value of product as a standard of merit." Published monthly by the "Breeders' Live Stock Association," at Beecher, Will county, Ill., at $1 a year, 50 cents for six months and 25 cents for 3 months. T. L. Miller, President; E. S. Shockey, Secretary. No. 6, Vol. I., of this new enterprise has reached our table and presents a remarkably interesting table of contents of more than ordinary ability, and places the State of Illinois, in her live stock and agricultural publications, far in advance of any other State in the Union, with perhaps the single exception of New York. Live stock is evidently a larger factor in the husbandry of Illinois than it is in that of Pennsylvania.

THE ANTEDILUVIAN.—A monthly review of current literature; a royal octavo of 16 pages, edited and published by E. W. Foster, 133 Dearborn street, Chicago, Ill., at 50 cents per year. Circulation 10,000 copies. In addition to other interesting literary matter it contains book lists of history, travels, illustrated works and magazines, works in parts, masonic, agriculture, lives and biographies, miscellaneous, &c., of various large publishing houses.

Magazines, pamphlets, quartos and folios received:

Magazines and Pamphlets.—Gardeners' Monthly, Botanical Index, Vick's Floral Guide, Park's Floral Magazine, American Farmer, Wallace's Monthly, American Bee Journal, Southern Planter and Farmer, The Laws of Life, The Lecturer, International Review, Condition of the Crops for August, 1880, School Journal, &c.

Quartos.—American Agriculturist, Nebraska Farmer, Farmers' Friend, Western Agriculturist, Sugar Beet, The Farm, Farm Journal, Floral Monthly, Musical Herald, Travelers' Record American Garden, American Stockman, &c.

Folios.—Germantown Telegraph, Prairie Farmer, Colman's Rural World, Massachusetts Ploughman, New Hampshire Farmer, &c., regularly, and many others irregularly.

AN EDITORIAL VADE MECUM.—The American Almanac and treasury of facts—statistical, financial and political—for 1880. Edited by Ainsworth R. Spofford, Librarian of Congress, and published by the American News Company of New York, contains the largest amount of useful information, condensed into the smallest and most convenient space of any publication of a similar character that has ever been brought to our notice. This 12mo. of 294 pages is issued under the auspices of H. H. Warner & Co., proprietors of *Warner's Safe Remedies*, Rochester, New York, and can only be improved on by adding the census of 1880. As it is, however, bringing all its information down to December 31, 1879, it is invaluable to the farmer, the mechanic, the commercial man and the politician. In the brief space that we can appropriate to a notice of this publication, we cannot go into the details of the work. Suffice it to say that there is scarcely a subject in the whole catalogue of human knowledge upon which there is not something instructive and useful in its pages; and, like the old schoolmaster in "Goldsmith's Deserted Village," we may wonder how one small head could possibly contain so much. The matter is mainly tabulated, arranged and indexed for convenient reference, and it is therefore a valuable adjunct to the editorial sanctum. The popular edition, in paper covers, (limp) is only 25 cents, about the price of three good cigars, or a dish of stewed oysters. To be had at H. H. Warner & Co.'s advertising agency, Rochester, New York.

HISTORY OF JERSEY FARM DAIRY, San Bruno, Cal., R. G. Sneath, proprietor, No. 837 Howard street, and 350 Thoma street, San Francisco. A handsome little 12mo. pamphlet of 24 pages, with four microscopic illustrations of pure and impure milk. This is not only an exceedingly well gotten up pamphlet, mechanically, but also of a superior character in its literary composition, condensing a large amount of information into a limited space, and useful not only to local dairying, but also to the subject in general.

FICTION IN PUBLIC LIBRARIES, by Wm. Kite, Librarian of the "Friends' Free Library," Germantown, Philadelphia, Pa. A handsome little 12mo. of 8 pages, and, of course, as may be implied from its title, averse to works of fiction in public libraries; a sentiment our understanding endorses so far as it is an *abuse*, without committing ourself unqualifiedly against its *use*, under reasonable limitations.

MISCELLANEOUS.

The Fruit Evaporator.

Within a few years the evaporation of fruit by improved processes, under the stimulus of the current high prices for the product, has received much attention. American evaporated fruits have gained a great reputation in Europe, and now constitute an important item in commerce. The demand, market and price within the last year has added new interest and importance to the business.

Perhaps the most significant fact in this connection is, that simpler and cheaper, yet philosophical evaporators have been constructed, and are now going into use as an auxiliary to the farmer and orchardist. Fruit growers should closely investigate and turn to account upon their own premises much, if not all, of the fruit that usually goes to waste or is sold at unremunerative prices. The fact that raisins are sold here for 10 cents per pound, after a carriage of thousands of miles, and evaporated pared peaches is worth 25 to 30 cents per pound, suggests at least investigation.

Seeds and Plants.

We would call the attention of those of our readers who contemplate purchasing seeds or plants during the coming season, to the advertisement of Peter Henderson & Co., New York, now appearing in our columns. Peter Henderson, the senior member of the firm, is known far and wide as a horticultural writer and authority. His books, "Gardening for Profit," "Practical Floriculture," and "Gardening for Pleasure," are now in the hands of thousands. The green-house establishment of this firm covers three acres in green-houses and employs upwards of fifty hands. Millions of plants are shipped by mail or express annually to every State and Territory. Their seed warehouse is the most extensive in the city of New York, and every order received is certain to be filled with goods of the best quality, and as they are producers as well as dealers, "everything for the garden" will be sold at low rates. Feb-3m

"Bo-Peep."

This exquisitely wrought steel plate engraving, by the well-known artist, J. A. J. Wilcox, from a painting by that world famous German artist, Meyer Von Bremen, is one of the most beautiful and artistic engravings ever published. A mother and her child are away from the dusty town for an afternoon's recreating in the "Sylvan Wild" of Germany; golden pages are added to life's book of "Happy Hours." It is a genuine steel engraving, and so excellent in subject and body that its possessor can never outgrow it—become he or she however æsthetic in art. Printed on 22x28 paper. Price $3.00. Published by R. H. Curran & Co., 22 School street, Boston, Mass. Apr-1t.

The Cooley Creamer.

This method of "deep-setting of milk" is coming into so general use, that at the recent dairy fair in New York, it was not shown as a "novelty," but took its place as a common and indispensable adjunct to the dairy. With a Cooley Creamer a dairyman is entirely independent of the weather, and his product is uniform at all times. It is in this, as well as in its convenience, that the Cooley process of setting milk commends itself to all who make butter.

From our foreign exchanges we infer that it has been quite extensively introduced into use in Great Britain.—*Albany Country Gentleman.* Feb-4m.

Inventors, Take Notice.

To any of the readers of THE FARMER who desire a patent we would refer them to William R. Gerhart, Solicitor of Patents, at No. 34 North Duke street, (2d floor) Lancaster, Pa. He has opened communication with the Patent Office, at Washington, and is prepared to push claims with promptness and dispatch. Apr-1m

Ballard, Branch & Co.

In another column will be found the advertisement of Ballard, Branch & Co. Apr-1t

A HOME ORGAN FOR FARMERS.

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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 specialty of which he is so thorouhly 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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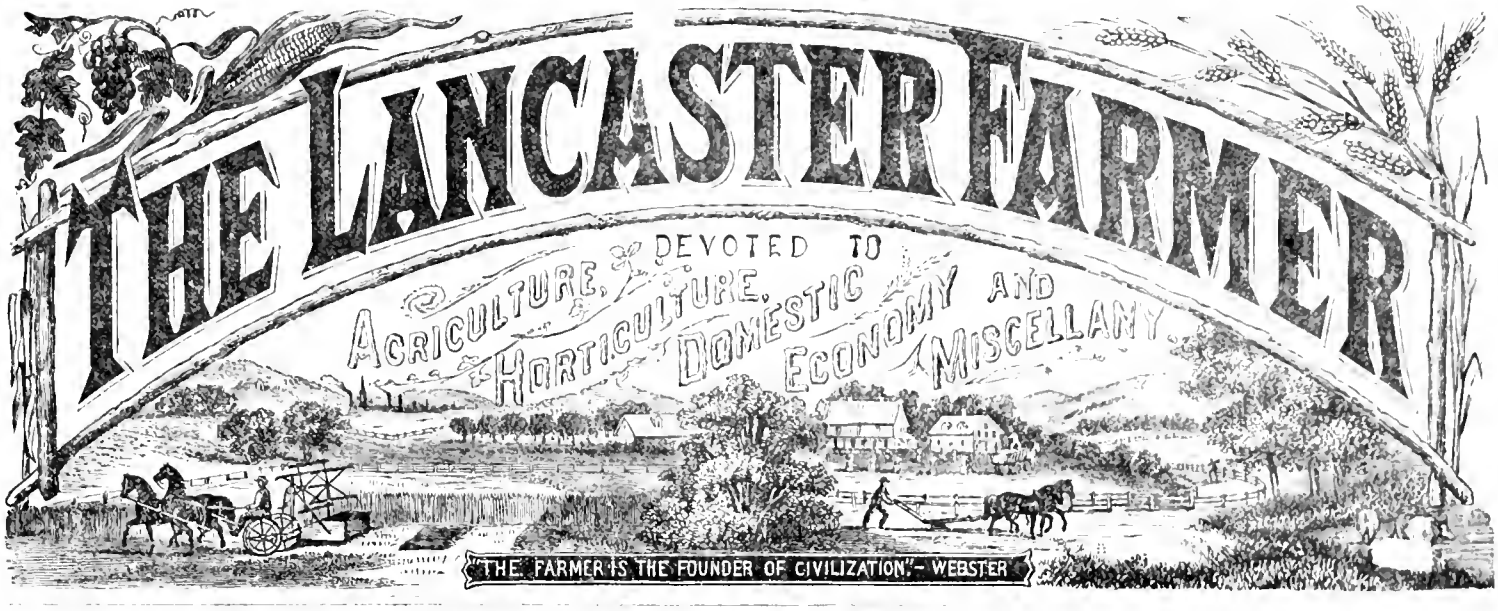

Dr. S. S. RATHVON, Editor. LANCASTER, PA., OCTOBER, 1880. JOHN A. HIESTAND, Publisher.

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

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*.....	2:40 a. m.	4:05 a. m.
Way Passenger†.....	5:00 a. m.	7:50 a. m.
Niagara Express.....	10:05 a. m.	11:20 a. m.
Hanover Accommodation,.	10:10 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy.....	11:05 a. m.	12:40 p. m.
No. 2 via Columbia.....	11:07 a. m.	12:55 p. m.
Sunday Mail.....	10:50 a. m.	12:40 p. m.
Fast Line*.....	2:10 p. m	3:25 p. m.
Frederick Accommodation.	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom.....	5:45 p. m.	7:40 p. m.
Columbia Accommodation..	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express.....	7:25 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.
Atlantic Express*.....	12:25 a. m.	3:00 a. m.
Philadelphia Express†.....	4:10 a. m.	7:00 a. m.
Fast Line*.....	5:20 a. m.	7:40 a. m.
Harrisburg Express.....	7:35 a. m.	10:00 a. m.
Columbia Accommodation,.	9.10 p. m.	12:0 p. m.
Pacific Express*.....	1:25 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*.....	5:20 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.

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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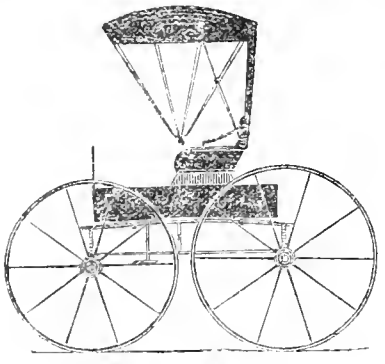

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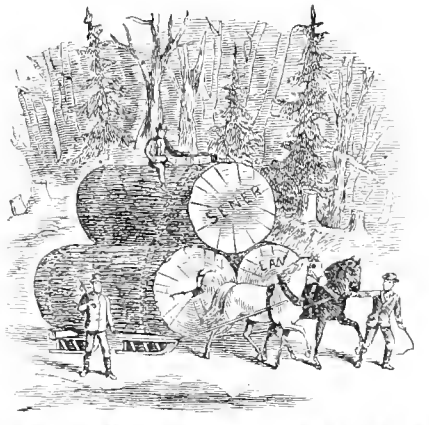

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Nov-1y

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor. LANCASTER, PA., OCTOBER, 1880. Vol. XII. No. 10.

EDITORIAL.

OUR LATE FAIR.

From the quality of the material on exhibition it seems very evident that Lancastre county always *can*, if she *will*, furnish the substance to made a creditable display of her productions almost at any time—late or early—wet or dry. But the exhibition lacked sadly in quantity, in variety, and in the almost total absence of some of the most prominent and showy productions. It lacked also in the patronage of the public, and hence—from a reference to the proceedings of the society—it will be seen that it was anything but a financial success. Still, it was *very good*, so far as it went, and the self-denying few who were instrumental in pushing it through, against a strong counter current of indifference and political excitement, are entitled to more than the mere criticisms of their fellows. They made use of all the usual appliances, and if pending contingencies rendered these abortive, the fault is not theirs, except so far as they may have *unwittingly* erred in their management. Under any circumstances, it has come and gone, and we can breath more freely again.

UNDER TRIBUTE.

Our sincere thanks are due to Mr. Wm. Weidle, of Lancaster city, for a liberal donation of Sheldon, Howell, Angeau, Duchess, Lawrence and Sickle pears, and sundry clusters of Israella grapes of unsurpassable beauty and lusciousness. Of course, connoisseurs are well acquainted with the qualities of these fruits respectively, but there is a quality attaching to the Israella grapes which we think deserves a special notice, and that is their natural longevity. They ripen cotemporary with the Hartford Prolific, (which with us always ripen in the last quarter of July) and yet they hang on the vines and retain all their flavors unimpaired up to the first of October, which is a very special merit in grapes. Many varieties begin to drop off or decay soon after they are ripe, but this is not the case with the Israella, and more than compensates for anything they may lack in quality, when compared with other varieties. Our thanks are also due to Mr. Levi S. Reist for his donation of the large and beautiful collection of apples which he had on exhibition at the late fair, but which through some unaccountable omission, were not entered for competition. These gentlemen, including Mr. Daniel Smeych, never fail, at the proper time, to hold in practical remembrance the editor of this journal, and which we can only reciprocate in this record of our thankfulness.

NATIONAL BEE-KEEPERS CONVENTION.

The National Convention of Bee-keepers, in session in Cincinnati, on Friday elected the following officers for the ensuing year: President, N. P. Allen, of Kentucky; Recording Secretary, Erich Parmly, of New York; Corresponding Secretary, C. F. North, of Cincinnati; Treasurer, F. A. Dunham, of Depere, Wisconsin. The Vice Presidents remain the same, except that Mr. Williamson, of Lexington, was chosen for Kentucky, and R. T. Root for Ohio. Lexington, Ky., was chosen as the next place of meeting.

CAROLINA CORN-WORM.

On the 26th of June, 1880, I received in a box, by U. S. mail, from Spear & Co., No. 10 Chatham street, Union, South Carolina, two joints of a cornstalk infested by a peculiar kind of an insect larva, with the following letter:

UNION, S. C., June 23, 1880.

"DR. S. S. RATHVON, Lancaster, Pa.

Dear Sir: We send you by mail a small box containing several joints of cornstalk, with several moths in them. The farmers are greatly troubled; at least one-fourth of the corn is damaged by this moth. Please tell us what it is."

I believe there were *three* parts of joints, but only two of them contained larvæ, and these only contained three, just sufficient to secure a specimen each of *larva*, *pupa* and *imago*, and the larvæ were already nearly matured, and altogether new to me; therefore, I had to await their final development, which no doubt required a longer time here than it would have required in South Carolina. These larvæ were from fifteen to twenty millimetres in length, and about ten in circumference; color dull white, faintly tinged with yellow; head clay, or honey yellow; six short, sharp pectoral legs, but no prolegs; instead thereof eight small, dark, tubercular concretions; segmental divisions very distinctly marked, and on each ten brownish, glossy, tubercular dots, each surmounted with a short, whitish *seta*, or bristle, longest on the last, or caudal segment. This larva, whether normal or abnormal, had the most singular mode of locomotion I have ever witnessed in a worm. By the aid of its short feet and tuberculated segments, it rapidly rolled itself over and over latitudinally with a slight screw-like motion, which propelled it forward in an oblique line, and when at rest, it was just as likely to be on its back, or one of sides, as on its belly. The rapidity of this motion, and the progress it made in the line of direction, was the most marvelous. One of the joints of the cornstalks contained a portion of the root, from which I am able to infer that the eggs of the moth are deposited at the base of the stalk, perhaps a little below the surface of the soil, where they incubate, and the young larva there enters the stalk and works its way upward through the inner pith as far as the second or third joint, and, in this case, where the burrows terminated, the whole of the pith, except the fibrous portion, was absorbed, and the stalk limp and wilted, and doubtless the least wind would cause it to bend or break, as is done mechanically with broom-corn.

Another singular characteristic of this larva is this: When it is mature it cuts a hole out through the side of the stalk and builds a loose, light gallery, or cocoon, out of its debris, which stands out and upward at about an angle of forty-five degrees. This *tube*, as it may more appropriately be called, is about the length of the larva (20 millimetres), but I fail to apprehend the use of it, for the larva afterwards retires within the stalk and pupates in its burrow there, and remains there until the moth is evolved, the egress of which must be out through this tube. The pupation occured in this case, between the 29th of June and the 4th of July, in the two subjects in which I permitted it to occur.

The *pupa* is eighteen millimeters in length, four in diameter, cylindrical in form, slightly bent, and of a light-brown color, but soon becomes a darker shade. The whole surface, except the portion inclosing the wings, is roughened, owing to fine, gritty or granulated tubercles on the central portion of segments, which are larger and sparser on the anal segments. These tubercles incline backward slightly, but the surface is rough to the touch in either direction, and when disturbed the pupa has power, by rapid contortions, of throwing itself from one position to another in a forward direction. The caudal termination is irregular and obtuse, without spines, other than the appreciation of the anal tubercles. The pupal wings extend down over the sternal surface about half way between the "head and tail." Under a microscopic examination there are doubtless many other distinguishing characteristics, but they are, perhaps, not of essential value in a popular sense. On the 12th of July the moth evolved from the pupa. The whole body, including wings, feet and antennæ are of a silvery drab color, except a pair of prominent brownish eyes. From the end of the *palpi*—which project prominently forward to the end of the abdomen, the moth measures fifteen millimetres; when at rest the wings are deflexed and extend beyond the body, when they are expanded they measure twenty-five millimeters from "tip to tip" of the anterior pair. The wings are five millimeters wide at the apex or outer end, and narrowly fringed—longest at the end of the costal margin—slightly sloping towards the posterior angle. The antennæ are filliform, with a circular curl at the ends. The veination of the wings is very conspicuous; each vein of the anterior pair having a small brownish dot at the end, on the under side, and these and the eyes are all that differ from the general coloration. On the whole, it is a very pretty, bright looking moth, notwithstanding its plain, unattractive garb. This insect, according to Prof. Herman Strecker, of Reading, (to whom I submitted it for examination,) belongs to a group or division known among entomologists under the name of MICRO-LEPIDOPTERA, and to the family CRAMBIDÆ, a group but little studied yet in this country, and has therefore few specialists, and those not very accessible. I therefore provisionally refer it to the genus *Crambus*, and the species *carolina*, although so conspicuous an insect can hardly be new to science. An insect that destroys at least "one-fourth of our corn crop," and whose damages are known to the farmers, very probably came to the knowledge of Smith & Abbot, and is probably recognized in their great work on the Southern LEPIDOPTERA, but that work is not accessible to me at this time.

Even if I were able to tell precisely "what it is" as to its name alone, that would not help the farmer much in arresting its destructiveness. I am too far away from its locality to make any observations on its habits, or experiment with artificial remedies. Maturing so early in the season there is probably more than one brood during the year, and therefore it may also infest other plants than corn. The application of a repellant (as carbolic acid) near each hill might prevent the females from depositing their eggs there.

The MICRO-LEPIDOPTERA are generally very small species, very fragil, and also very perishable, and for this reason perhaps few study them or make a specialty of them, and little is known of their larvæ. About 35 years ago I made quite a collection of them. My attention was called to them by their peculiar gyrating and whirling motions on the leaves of the deep forest underbush, like a lot of saucy little bantums. Some of them were very pretty. The late Dr. Breckinridge Clemens, of Easton, Pa., made them a study, and named some of them for me. But secular duties interfered, and subsequently the whole collection perished through depredations of *Anthrenus varius*, or "museum pest."

TOBACCO PESTS—No. 3.

On the 12th of June last I received from Mr. D. Lippold, of Salunga, two small greenish gray *Lepidopterous* larvæ, which he stated were feeding on the leaves of his young tobacco plants, and which they continued to feed upon until they had consumed the young living plant he sent with them. They had

the quick and restless motions that so peculiarly distinguish the larvæ of the apple worm (*Carpocapsa*), although they evidently belonged to a different genus. The plant had but two or three small leaves in addition to the seed-leaves, and the worms attacked them along the edges, eating inward, although one of the leaves they perforated, eating into large holes. These larvæ, at that date, were eight millimetres in length, and about three in circumference: with six pectoral and eight prolegs, two of them being on the anal segment of the body: a light brownish head and a few short sparse hairs scattered over the body, which are only visible under a strong magnifying power. Through an unavoidable contingency these larvæ died and I immersed them in alcohol, in which they soon lost their greenish colors and became pale flesh colored.

Another Lot Received.

One month later (July 15th,) I received from a gentleman living in Spring Garden, Lancaster county, Pa., a Lepidopterous larva, one inch and a quarter in length, and about three-eighths in circumference, of a purer brighter green color, the same in form and motions as the above described, together with some of the young germinal leaves, on which it had been feeding. These leaves had not yet fully expanded, and the larva was feeding inside, holding them apparently together with a slight webbing. When disturbed its quick motions were very similar to those received from Mr. Lippold. After it had devoured all of the original plant in which I received it, I transferred it to a glass vessel in which I had a growing tobacco plant, which it attacked, and fed on the edges of the leaves, and on the 28th of July it left the plant and burrowed into the ground, but not before it had eaten nearly the whole plant.

The Transformation.

In two or three days thereafter it transformed into a glossy, light-brown, cylindrical pupa, three-quarters of an inch in length, having a double spine over an eighth of an inch in length at the caudal extremity without any other unusual characteristics. On the 8th of August the moth evolved from the pupa. The body is three-quarters of an inch in length, and the wings expand an inch and a quarter. The color is between a fawn and a very light brownish hue; the lower side somewhat lighter; eyes brown and prominent; antennæ filliform. Just inside of the costal or anterior margin of the wing and about midway between the base and the apex (of the front wing) is an oblong, square spot, more intense on the lower side than the upper, and a dark band between the spot and the apex; near the posterior angle of the hind wing, and from thence forward is a similar band, also more conspicuous below than above. The upper side of the head and thorax is darker in color than the rest of the body. But these marks only relate to this specimen; farther on it will be seen that they differ very much both in color and markings.

An Old Acquaintance with a New Face.

Now, it will no doubt surprise the reader as much as it did me to learn that the moth I thus bred from the green tobacco worm was nothing more nor less than that omniverous cosmopolitan known so extensively as the Southern "Boll-worm," otherwise "corn-worm" (*Heliothis armigera*, Hab), redescribed by Grote as *Heliothis umbrosus*. The larvæ of this moth exhibit great variations of coloration, not only in their different stages of development, but also at maturity. They occur in different shades of green, brown and pink, but have nearly always moderately broad marginal stripes of a lighter color. In the specimen I reared these stripes were whitish, tinged with red. That it was a *Heliothis* I did not much doubt, although it differed in coloration from the figures and descriptions I had seen; but I did not for a moment suppose that it was *armigera*. My friend, Prof. Herman Strecker, of Reading, however, assures me that it *is*, Mr. Grote to the contrary notwithstanding.

Not a Dainty Feeder.

It would be more difficult to state definitely what this insect does *not* feed on than what it does. In the South there are at least seven broods of it in a favorable season, according to Prof. Comstock, the earlier broods feeding on the young corn leaves, and the later ones on the cotton leaves, buds and bolls; it then also feeds on the silk of corn ears, and gets under the husks and feeds on the grains, not only when the corn is in the milky or green state, but they have been found feeding upon it when it is nearly or quite ripe. In the North they have not been heretofore very numerous, but they may possibly become so in the future, especially if they take a liking for the tobacco plant. Here they have been frequently detected feeding upon the young silk of the corn ears, and on the young grains and cobs, and some seasons they are present in considerable numbers; but there are other species of the cut-worm family that depredate in the same manner. They also bore into and feed upon the fruit of the tomato, and Mr. H. M. Engle informs me that they were more than ordinarily numerous and destructive to his tomatoes the present season (See FARMER for August, p. 117). And now they are likely to become "tobacco chewers," which is perhaps not very wonderful. Tobacco is a very succulent plant, and has invited and demoralized severl other insects that have heretofore been contented with more inferior, or at least more inexpensive food, and why not such an indiscriminate feeder as the boll-worm?

A Redeeming Quality in this Cosmopolitan.

If we excepted the frigid zones it might also be difficult to say in what part of the world they might not be found, for they seem to have a wide geographical distribution. They have, however, at least one redeeming quality—they devour, not only each other, but the larvæ and pupæ of other moths, especially those of the "cotton worm," (*Aletia*). Prof. Riley states that it is difficult to rear them in confinement on account of their cannibalistic habit, even when they have an abundance of other food; and not only in confinement but in a state of freedom. The boll-worm may therefore be placed on record as one of the *possible* "tobacco-pests" of Lancaster county; and, if possible, it may soon become very probable, and provision will have to be made to circumvent it.

Other Enemies of the Tobacco Plant.

Among the early enemies of the tobacco plant is also a beetle, the larva of which belongs to the true "wire worms." The term *wire worm*, without any qualification, is calculated to mislead the uninformed, because certain species of *myriopods* have also very extensively received that name, and coincidentally also a small myriopod has been found destructive to the plants in the seed beds, and which properly belongs to the category included in my paper No. 1. An account of this "pest" may be found on page 161, Vol. X., of THE LANCASTER FARMER.

The true wire worms infest the tobacco after it is planted in the field. They don't attack the leaf—indeed, they could not well adhere to the surface or edges of the leaves; they bore into the stems at their bases, and work upwards; but their history and transformations are difficult to trace to their full development; because, even admitting that the eggs are deposited at the base of the plant, they don't attain their final development there. After the tobacco gets a fair start at growing, nothing is seen of these worms again until the following spring.

An Instalment of Wire Worms Received.

On the 12th of June last Mr. Lippold, of Salunga, also sent me three of these wire worms, which, with many others, were depredating upon his plants at that time. Mr. L. is an intelligent and successful tobacco grower; but it must not be inferred that his crop was infested beyond any others in the county. I have found that there are but few who will go to the trouble to capture, properly pack, and send these pests to an entomologist, and he is one among them. These wire worms at that date were twelve millimetres in length, and about three in circumference; a lemon yellow in color; head dark brown, and the dorsal surface of the three first segments of a light brownish color; on the ventral surface of these segments are three pairs of short feet (pectoral). On the lower side of the caudal segment is a tubercular foot, in the centre of which seems to be the anal aperture, and this is used as a prop in locomotion; this terminal segment ends with two flattened bifid lobes, with a short obtuse spine at the outer base of each, and a few white bristling hairs. The whole body is firm and smooth, and the insect glides along rapidly, and soon buries itself in the soil.

What They Are And Do.

It is the larva of a Coleopterous insect, and belongs to the family ELATERIDÆ, commonly called "Click-beetles," or "Hammer-bugs," of which there are about two thousand species in this country. The bifid caudal lobes seem to ally it to the genus *Athous*, but its species could not even be surmised without the development of the beetle. Some of these wire worms also infest the young corn and the wheat, as well as other vegetable substances. Curtis, in his work on "Farm Insects," describes and figures a number of them, and his larva of *Elater murinus* makes the nearest approximation to the one here alluded to. These larvæ are probably in the soil when the tobacco is planted, feeding on other species of vegetation, but tobacco affording a more luscious and abundant repast, they, like many other insects, are attracted to it.

Remedies for These Pests.

Of course I can give no remedy for the *Tobacco Boll-worm* from my own experience. When they are numerous in the South they do not attempt to hand-pick them. Spraying the larvæ when quite young with suspended Paris green or London purple is said to kill them, but when they are older they are generally under cover, and could not well be reached. Late fall plowing and turning up the pupæ to winter exposure has also been suggested. But it seems to be the general opinion that trapping the moths with shallow basins of poisoned sweets, burning torches, or vessels of molasses and vinegar, are the most reliable modes of destroying them. This latter mixture is supposed to be the best. The moths belong to the family NOCTUIDÆ or "Night Flyers," and are fond of sweets; therefore, these traps should be set at night. There is supposed to be something about the vinegar compound that attracts them.

As to the "Wire Worms," an intelligent experimenter once informed me that he banished all the cut worms and other noxious insects from his garden by mixing gaslime with the soil.

QUERIES AND ANSWERS.

THE LONG-STINGED ICHNEUMON.

DEAR SIR: I enclose you what is said to be a small specimen of fly found on a dead tree in Walnut street, of this town. The party who caught it says that he has seen as many as twenty at one time on the trunk of the tree mentioned, all busily boring holes, but at the time he went to capture one of them for me, he only saw one which is the one enclosed, and which he says is only half the size of most of them. You will find that the head is severed from the body, having been done so by the party who caught it; he being afraid of it. He says it does the boring with the long caudal appendage; that he, with probably twenty others, watched them working a great while, but they all seemed afraid to molest them. I visited the tree this afternoon and found the whole trunk perforated with holes from an eighth to a quarter of an inch in diameter. I will visit the place again, when probably I can secure a larger and more perfect specimen. We are anxious to know what it is. Let us hear from you soon.—*Yours, &c., G. F. R., Columbia, Sept.* 17, 1880.

Your fragmentary specimen was received this morning. Although mutilated, still there was sufficient of it undamaged to enable me to identify it. It is one of the "Long-stinged

Ichneumon flies"—the *Pimpla (Rhyssa) lunator* of entomologists. The family (ICHNEUMONIDÆ) to which it belongs, includes a very large number of species, but this species and the *atrata* possess the longest ovipositors. Practically the long caudal appendages you allude to is not a sting or stings, but simply a modification of the sting of other families of the same order. The insect is entirely harmless and may be handled with impunity. This insect is a parasite, and did not bore the holes in the tree which you say you saw.

These holes were previously bored by some other insect in its larva state—perhaps a species of *Tremex*, *Sirex*, *Clytus*, *Elaphidion*, or some other wood-boring larva; and the instinct of the *Pimpla* taught it that there were grubs in the old tree, which would be a proper place to deposit an egg or two, and it availed itself of its normal relations to the host inside. Where the host is within reach of the ovipositor they reach it through the aperture already existing; but where it is too far off to be thus reached they penetrated the wood, and their instincts unerringly teach them where to penetrate. The ovipositor of these insects is composed of three parts—two outside sheaths and a central saw or rasp, with which they saw or rasp a small aperture, pushing the two sheaths inward as the pipes are introduced into an artesian well. Having reached the grub inside, they deposit one or more eggs into its body (according to its size,) and these these eggs are hatched, the young Pimplas feed upon the carcass of the grub. From this habit they are also called "cuckoo flies"—that is, they have no hole and make no nest of their own, but trespass upon the premises of other insects and feed upon the bodies of their young. Sometimes, when the wood is hard, they are unable to withdraw the ovipositor, and die in that position. I have often taken them in that situation. When they pass through all their transformations and are ready to emerge as a fully developed pimpla or cuckoo fly, they generally come out through the aperture made by their host, but if that should be impracticable, they have sufficient mandibular power to cut their way out by a shorter process. They seem to be partial to the larva of the "Pigeon Tremex" (*Tremex Columba.*) which usually bores into dead or decayed wood, but I have captured them fastened to pretty solid oak wood, and when the host inside was probably the grub of the "Horned Passalus" (*Passalus cornutus.*) They are classed among innoxious insects, or insect friends.

Mr. J. H. P., Lancaster, Pa.—The plant submitted to our examination, from your Maryland friend, is the common "Horse-Nettle," (*Solanum carolinense*, Lin.) usually grows in sandy soil, from Connecticut to Illinois, and southward, at least as far as Georgia. It is a low perennial,and grows from the root every year, and is therefore difficult to exterminate; although, like its congeners, the common potato, the tomato, the egg-plant, and the deadly night-shade, it will also grow from the seeds. There is an allied species (*S. virginianum*, L.) very nearly like it, which is now not recognized as distinct, by the best authorities; it therefore becomes degraded to a mere variety. In the absence of flowers this noxious plant may be known by its orange-yellow spherical berries, hanging in loose racimes, like the common potato-apples; by its roughish, pubescent, oblong leaves; by the pale yellow prickles on the stalks, and especially along the mid-ribs of of the leaves. On the same plant may be found a variety of leaf forms, "ovate, acute, toothed or angled." It is the favorite food-plant of the "spurious potato-beetle," (*Doryphora juncta,*) and we observe that the leaves of the specimens before us are profusely punctured, probably by some species of "Flea-Beetle," (HALTICIDÆ). We cannot recommend any better remedy for its extermination than digging it entirely out of the soil. Cutting it off before the seeds mature, and making a bonafire of the plants, when dry, would not effect the desired end, for it would grow up from the roots as rank as as ever the following season—it must be dug out "root and branch."

Mr. J. H., Lancaster, Pa.—Your grapelike vine, with the clusters of blackish berries, is a species of "Virginia Creeper," (*Ampelopsis bipinnata*, Michx.) also called the "American Ivy," the leaves of which turn red in later autumn. It belongs to the vine family (VITACEÆ), although it is entirely without tendrils. It grows usually in rich soils in Virginia, Kentucky, and farther southward. Dr. Grey retains it in the genus *Vitis*, but Michcaux places it in the above genus, which includes the true Virginia creeper, and from which it is mainly distinguishable by the entire absence of tendrils. The berries are two-celled, have a sweetish taste, and contain two seeds very like grape seeds. Its presence in Lancaster is accidental, or perhaps it may have been introduced, but it is quite common farther south, along rich river bottoms. Possibly you might cross it with some of our local native varieties and produce a *new* grape, if not a *good* one.

Mr. H. G. D., your plant exhibited to us some days ago, as nearly as we can recall it, is a "False (purple) amaranth," *Euxolus viridus,*) and belongs to the family AMARANTACEÆ, which includes many varieties, some of which are common weeds, although a few are cultivated on account of the bright and varied coloring of their foliage. Yours being a livid purple would include it among the chosen varieties.

COMMUNICATIONS.

For The Lancaster Farmer.

KANSAS FAIR AND TRAVELS TO THE ROCKY MOUNTAINS.

On the 8th of September, 1880, Walter M. Franklin, Hon. J. B. Warfel and the writer, had the pleasure of joining J. S. Conyngham, Esq., Pay Director of the U. S. Navy; A. P. Brown, of Philadelphia; J. H. Borland, of Pittsburg, Pa.; Rev. R. J. Nevin, of Rome, Europe; Charles Edelheim, proprietor of the great Viena bread bakery, of Philadelphia; E. G. Cattell, Esq., brother of Hon. O. G. Cattell, Senator of New Jersey; B. H. Morton, Esq., Librarian of the Horticultural Library, New York; Right Rev. Bishop Vail, of Kansas; Rev. W. M. Baker, novelist and divine, of Boston; W. Hutchinson, Esq., of the State Department, Washington, D. C.; Hon. Geo. Hylton, of Jallitf, Bath, England, son of a member of Parliament, and Gen. John H. Rice, of Fort Scott, Kansas; under the charge of W. W. Reitzel, business manager of Forney's *Progress*, and car conductor J. N. Taggert; having been invited by Hon. James F. Keeny, President of the Western National Fair Association, organized in Kansas, as representatives from America and Europe to the great Agricultural and Industrial Exhibition, at Bismark Grove, near Lawrence city, which opened on Monday, the 13th of September, and closed on Saturday, the 18th of the month and year as above.

We took our departure on the magnificent Pullman palace car *Celtic*, in a special train, which left the station of the Pennsylvania Railroad, at Jersey City, in the morning, proceeding by way of Philadelphia and Lancaster to Pittsburg, and westward to the place of destination, with transportation free over the P. R. R. to Pittsburg, Cincinnati and St. Louis, and from thence over the Vandalia, the Missouri Pacific, the Union Pacific; and west from Lawrence, Kansas, to Denver and Leadville, Colorado, over the Union Pacific, Kansas Division, the Denver and Rio Grand, the Denver and South Park and Pacific Railroads, and back again.

We had the satisfaction of enjoying a ride in a new Pullman palace and sleeping car, with all the modern improvements and conveniences, and arrived at Pittsburg in the night, and at Indianapolis on the 9th, about 2 o'clock, where we took dinner. Of course that part of the country which we passed through during the night we had no opportunity of seeing, but that part which we did see exhibited the usual beauty and activity. Our object being the extreme west I will forbear a description of intermediate places, except to say that many of the towns, and even the country, has improved very much since I traveled through it before. We arrived at St. Louis on the evening of the 9th, about 10 o'clock, where we stayed over night, and spent the next day in viewing the city. We stopped at the Planters' House, from which place each one struck out to see the many sights which St. Louis so abundantly presents. Some went to see the river, some to the wharf, some elsewhere, after which we all accepted an invitation to visit a fine horticultural exhibition being held in a spacious hall belonging to the Board of Trade, and located near the Planters' House, an occasion which we enjoyed, the Board being in session at the time. Our next movement was a ride through the city and about four miles out to a very fine park, containing a great variety of splendid flowering plants and shrubbery, interspersed with evergreens, fine statuary, surrounded by beautiful scenery. Among the statuary are Humboldt and Shakespeare, all of which is owned by Mr. Shaw, who handsomely entertained us. This politeness, under the circumstances, was unlooked for, and he would not permit us to leave without joining him in a glass of refreshing lemonade. Thus ended our visit to St. Louis which was pleasantly spent. Having received a telegram from the President of the Agricultural Exhibition, at Sedalia, to attend their fair, we departed and arrived there on Saturday morning, and were under the hospitality of the society. After looking over the various displays, which were very creditable to the society and the place, we started for Kansas City, where we remained over Sunday, stopping at the Coates House. This city seems destined to be one of the largest and ilvelies in the West. It has already reached a population of sixty thousand souls. We left Kansas City on Monday morning for Lawrence, in Kansas, as our next objective point, which we reached at about 11 o'clock, and were received by members of the city government and the executive committee of the fair association, who conducted us to the Ludingdon House, where we dined. After dinner we were taken to the University, the view of which, and the grand panorama of the country from the cupalo,were exceedingly delightful. From the University we were driven to Oak Hall Cemetery, where we saw the grave of General James H. Lane, and also those of the Quantel-raide martyrs. From thence we were driven to the river to inspect the water-power, which is computed to be about two thousand horse-power, and when all utilized will be, perhaps, the greatest water-power in the West. Lawrence is the county seat of Douglass county, Kansas, pleasantly situated on the Kansas river, about forty miles west from Kansas City, Missouri, (which is on the Missouri river) and is a most beautiful town, containing about ten thousand inhabitants. It is principally built on the south side of the Kansas river, noted for the defence of the Free Soilers against the pro-slavery men, before the "great rebellion," and especially the Missouri raiders, who spotted it for their battle ground. It was also attacked by large numbers of Missourians in 1863, led by Quantrel, who attacked the place about 5 o'clock one morning, setting fire to the town, and burning all he could, and killing every man, woman and child without distinction. The Lawrence people say that it is a wonder that a single house or person escaped. But the town was so "beautiful for situation," and the country around it so fertile and picturesque, that it was soon rebuilt by the escaped and returned citizens, and strangers.

Bismark Grove is located about one mile from the City of Lawrence, and consists of about 340 acres. About one-third of the

grove is grown with fine walnut and elm trees principally, some of them being very large ones. The other two-thirds is prairie land. On Tuesday, the 21st, early in the morning, the people came in from every direction, on the railroad and on wagons, by hundreds and thousands. At 10½ o'clock our excursion party and the officers of the fair association, escorted by the military companies and the bands, made a tour of the grounds and entered the tabernacle. President Keeny delivered an address of welcome to all assembled, which time and space will not permit me to give in detail. But among other things he said that Kansas will compare favorably with any State, territory or province in the world. He said that the population in Kansas in 1870 was only 107,000, while in 1880 it counts 996,000. It contains over 3,000 miles of railroad, worth over $20,000,000. It has good State buildings, asylums, normal schools, universities, agricultural colleges, and 18,000 farm buildings. Three cities in the State contain a population of over 15,000 each. The value of the corn crop of 1879 was over $18,000,000. Total crops of grain in 1880 over $60,000,000, and it has over 15,000,000 head of stock. The State is over 400 miles long and 200 miles wide, and contains an area of 508,000,000 acres under practical cultivation, and he is of opinion that no State in the Union holds out better inducements to settlers. President Keeny then introduced Judge Usher, mayor of Lawrence, who spoke of the spacious grounds and splendid display; also of the many railroads centering at Lawrence, and the permanency of the fair ground. Hon. J. S. Emery then spoke in behalf of the chamber of commerce, and alluded at considerable length to the early history of the State and its unparalleled development. A. P. Brown, Esq., of Philadelphia, was introduced and made a response in behalf of the excursionists. Rev. R. Nevin, of Rome, Italy, also made some remarks.

The Fair.

I cannot describe this exhibition in detail as it ought to be described in order to give the reader a truthful conception of its material and its magnitude, and must refer him to the columns of the Lawrence *Home Journal*. Although there are 1,500 of the finest stock pens ever seen on any fair ground in the country, yet at noon yesterday there were fifty head of stock unhoused, and fifty more unprovided the next morning, because there was not room for them in the 1,500.

To give a description of the different displays brought together at this exhibition would be too voluminous in detail to be practicable, even if it were possible, and hence I shall only give a few general items as they casually attracted my attention. The stock of cattle, horses, swine and sheep were among the best it has ever been my privilege to see—as a whole; several fine-looking stallions, and many "extra good" cattle, although there were not many Alderneys. A fine specimen of swine represented to weigh 1,300 pounds was on exhibition. The industrial and mechanical exhibition was particularly good. I observed over half dozen different self-binding reapers. Ten portable engines, three of which were "self-drivers." The State building measures about 10,000 square feet, and is two stories high. The county building is about 600 feet long and twenty-five feet wide, all of its space packed full of corn, wheat, apples, pears, potatoes, beets, squashes, hemp, cotton, &c., &c. As I indicated above, that I was not equal to a detailed description, allow me to add that this fair exceeded anything of the kind I have ever seen, not even the Centennial included, both in the quantity and quality of its farm products. A new, and to me, very novel feature was the *chariot races*. These are low two-wheeled vehicles, open behind, to which four horses abreast are hitched, and in one of the races one of the chariot teams was driven by a lady, and she made her mile in two minutes. On one occasion as the lady entered the track her team became unmanageable and ran around before she and her attendant could get them stopped, the crowd getting the benefit of the run. The horse races, as usual, was prominently a feature of the exhibition—indeed, more so than I had ever yet seen. Without committing myself *pro* or *con* on the subject of "trials of speed" or horse-racing at fairs, it really appears that something of this kind is essential to financial success. We visited several exhibitions, and at all of them the races were the most prominent and attractive features, and if it were not that the *use* is so very apt to degenerate into *abuse*, I should be tempted to say that no out-door exhibition should be attempted without including the races. The masses of all communities are composed of the middle-aged and the young, and these are attracted by the showy and the sensational. During the late fair in Lancaster the northern portion of the county visited the fair at Reading, and entirely ignored the exhibition in our own county, and there is reason to believe that the races at the latter were the superinducing cause. The result was the former was a failure, financially, while the latter was a success. However this may reflect upon our morals, our local pride, or our want of enterprise, it is still the naked *fact*, and involves the question—"What are we going to do about it?"

We left Lawrence depot on the night of August 22d, for Denver, where we arrived on the morning of the 24th, a distance of 600 miles. About 300 miles from the Missouri river the country is the best, and pretty level, but from there westward, all the way to Colorado, there is nothing but prairie and sand; much of it desert-like; no timber whatever, and very dry—so dry, indeed, that the wind blows the sand about like drifting snow, and no rain has fallen for nine months. Creeks, and even rivers, are dry, so dry that you can walk across them without wetting the soles of your shoes. Even Platte river, at Denver, is dry. Denver is, however, a very handsome place, one of the finest locations imaginable, inclining west toward the Rocky mountains, the mountains being visible all the year round, with many parts covered with snow during the whole summer season. Four years ago the population of Denver was only 4,700, whilst at the present time it is computed at 40,000. I had the pleasure of meeting our townsman, T. F. Herr, who took us round through the city and showed us the great improvements going on. The improvements of the present year embrace about 1,500 new dwelling houses, and additional other buildings. The city is only fifteen miles from the Rocky mountains, and is supplied with water from those mountains. There is water running through nearly every street. There are some of the largest smelting furnaces in the Union located here, and the people principally make their living by working the mines. There are a large number of mining companies of various kinds located around the city digging for gold, silver and lead.

We left Denver on the evening of the 24th for Leadville, which is in the same State, (Colorado,) and from thence south to Puebla, where we met Charles Gast, Esq., formerly of Lancaster, Pa., who is practicing law here. We stopped on our way at a place called *Maitua Springs*, at the foot of Pike's Peak, which is a summer "watering place," and a locality of great interest. Three or four large buildings have been erected for the maintenance of traveling guests. Many interesting natural objects exist here, such as "sulphur springs," the "Garden of the Gods," &c. Stones are standing here from 500 to 2,000 feet in height, like pillars and pyramids. Puebla is a town containing about 5,000 inhabitants, and is situated on the Arkansas river, on a kind of sandy plain. From Puebla we followed the river through the Rocky mountains, agreed by all parties to be the greatest natural curiosity in the Union, and arrived at Leadville about 10 o'clock on Saturday evening, where we encountered snow and rain. On Sunday morning we called on our friends from Lancaster county, J. F. Freauff, Esq., and Mr. H. Eshbach, of Lititz, whom we were glad to meet and they to meet us.

Fourteen of us hired a team to canvass the city and county, accompanied by Mr. Freauff and Judge Green, of Easton, Pa., whom we met here. Leadville is about 135 miles west of Denver, and about 750 from the Missouri river, and is situated right in the Rocky Mountains, and surrounded by them. Snow is visible all around the city all the year round, and the town is 14,000 feet above the sea level. It is only three years since the first house was built in Leadville, and now it contains a population of over 17,000. The people live chiefly by digging gold, silver and lead, the same as at Denver. There are thirteen smelting furnaces at Leadville, and like at Denver, there is always a great throng of people on the streets, in that respect resembling our great eastern cities, only on a more limited scale. There is an opera house in the town, several churches and a number of banks. Mr. Freauff informed us that the sales of mineral amounted to $1,500,000 a month. I was surprised to see the immense piles of empty fruit, vegetable and meat cans and jars that are hauled away as rubbish, showing that the subsistence of the town is mainly brought there from the east.

We left Leadville on the morning of the 27th and returned to Denver, where we arrived the following morning (Tuesday,) and spent some time with Mr. T. F. Herr. At 11 o'clock A. M. on Tuesday, the 28th of September, we embarked in our Pullman sleeping car Celtic, for Pennsylvania and home. As we could not run our broad-gage car on the narrow-gage road from Denver westward, we were furnished free transportation on the narrow-gage west from Denver. After a pleasant passage from Denver eastward we arrived in Lancaster Friday, October 1st, in the evening, with many thanks to all of my fellow-tourists, and those who contributed to our comfort during the journey, and especially to Mr. Reitzel, Mr. Taggart, Mr. Cline and Mr. Keeny. Thus ends my feeble effort to record a few incidents of a memorable journey to the Rocky Mountains, although to do the subject justice many additional pages could be written. Still, I feel that I have done my duty as things appeared from my particular standpoint. The remark was frequently made at the fair of Bismark Grove, as we viewed the exhibition from the observatory of the University at Lawrence, and traveling over the mountains and through the canons, that the half could not be told, and that it would be impossible to tell all. The real truth can only be realized by a personal view, and when seen human language and descriptive power would totally fail in attempting to make a record of the country, its scenery, its productions, and its beauties.—*Peter S. Reist, Lititz, October* 7, 1880.

SELECTIONS.

NEW EARLY PEACHES.

This subject continues to be new, as there are varieties added each year, most of which are to be earlier than any previously introduced. I have this season fruited fifteen varieties earlier than Hale's, viz: Cumberland, Saunders, Downing, Briggs May, Honeywell, Climax, all glandless varieties; also, Amsden, Alexander, Wilder, Musser, Bower's Early, and Gettysburg Seedling; all with leaves having globose glands; and Beatrice, Louise and Rivers, having reniform glands, all in the same orchard, now in its fifth year.

The result of another season has strengthened my conviction that on our grounds Cumberland is the earliest peach yet fruited, closely followed by Saunders and Downing, with Alexander, Amsden and Musser very little behind. Wilder, although ripening some fruit nearly as early as any, continued to ripen much longer, so as to close with Rivers and Louise, which came in fully two weeks

behind the earliest varieties, Early Beatrice coming between.

The season being unusually early, we picked the first ripe specimens from Cumberland on June 24th, and marketed the first bushel June 26th, and to-day, July 23d, we pick the last Wilder, Louise and Rivers, while Hale's will barely be ripe by August 1st. The other new early sorts which are growing on our grounds, and which we expect to fruit in a year or two at most, are E. Canada, Early Rose, Hyne's Surprise, Ashby's Early, Baker's Early, Brice's Early, Early Lydia, Nectar, Gov. Garland, Waterloo, and McKain's Early, all having globose glands, except Early Lydia, which is glandless, and Waterloo, which has reniform glands. I make this distinction that they may be recognized, as the glandless varieties are invariably weaker growers, and the leaves and young wood are more or less subject to mildew on some soils during some seasons. We are indebted to Mr. T. V. Munson, of Denison, Texas, and to Mr. Hynes, of West Plains, Missouri, for most of the aforenamed varieties which have not yet fruited. Mr. Munson has probably the largest collection of quite early peaches in the country, which he is testing with the view of making public the results of his experience. In an article published in the Denison *Daily News* of June 20th, 1880, he says, "the present season has been a peculiar one, retarding the maturity of the extra early varieties, while the later came on in unusual season. This has thrown the ripening of nearly all varieties up to Hale's Early, into a heap. It has been noticed, too, that the old, well-established trees have ripened fruit much earlier, and of larger size, than young trees of the same variety." Our experience this season is that they were unusually early, and will leave, apparently, a larger gap between the quite early and later ones than at any previous season since these quite early peaches have been fruiting.

Some of our friends who have fruited Wilder, reported it as filling the season between the quite early kinds and Hale's, but with us it invariably ripened as early as Alexander and Amsden, but continued its crop a little longer. Bower's Early and Amsden on the same tree showed the latter to be several days earlier. In our orchard of several hundred trees, about 75 were in full fruiting, many being entirely overloaded. The crop was unusually fine, high colored, and with the exception of a few trees, quite free from rot, while Hale's not yet ripe is rotting considerably. I am not sanguine that these early kinds will continue exempt from rot, but may we not reasonably hope that some of them will? All these early kinds thus far fruited are, like Hale's, half clings, and no doubt, seedlings from it, except Rivers seedlings, which are of a different class, and which we shall discard, Beatrice being too small and the others too tender for market.

New early varieties are still being introduced, and we shall continue to collect and test them as fast as we can, in order to prove, if possible, which is the earliest peach. Meanwhile, we look forward for a freestone as large and fine as "Mountain Rose," and as early as the earliest.—*H. M. Engle.*

HINTS FOR OCTOBER WORK

Top-Dressing.

Bone dust or "tankings," or some fertilizer in which the nitrogen is not in the form of ammonia, and not soluble, is the best for late autumn application to grass or grain. Such a manure has some immediate effect, yet is not washed away in solution by heavy rains, but shows its potency in the spring.

Weeds in Grass Land

may be very easily seen and destroyed this month by the use of the "spud," a broad chisel blade attached to a handle like that of a spade or long-handled shovel, having a spur upon it for the foot to aid in thrusting it into the ground. A boy with an instrument of this kind can rapidly clear grass land of buttercups, daisies, and a multitude of other biennial and perennial weeds.

Potatoes.

The sooner they are dug now the better. It is best to keep them awhile either in protected heaps in the field, or on some unused floor. They throw off much moisture within a few days, and will heat if in large heaps or too deep in the bins. When thoroughly dry they may be placed in secure pits or in the cellar. Potatoes are injured at once by frost, and gradually by sunlight, or even by diffused light. They should, therefore, be kept from the light as much as possible, and decayed ones carefully culled out before they are put away.

Roots

are now making their best growth. Moderately warm days and cold nights seem to have a great effect upon them. As the time for heavy frosts approaches secure the mangels and sugar-beets. Top by rubbing the leaves off, not by cutting, as the wound often starts decay, which spoils the beet. Carrots secure attention next after the beets, and turnips next, leaving the Swedish turnips longest. Always protect piles of roots against frost by some covering. Turnips will survive severe freezing, but they are never so good for feeding.

Corn Fodder,

by which we mean the stalks after husking (not the leaves of the corn merely stripped off), should be bound in bundles, probably best done with willow withes, and stooked up so as to shed rain. Large stooks, well set and firmly bound, may be left in the field until needed for feeding, without injury to the fodder. In fact it is often brighter and better when treated in this way than in any other. In stacks, or in sheds, it is likely to heat and mould, unless it can be more thoroughly dried than we can be sure of having it.

Fodder Corn,

which, of course, was cut before the first frost, or much of its value was lost, should be handled much in the same way. As soon as the stalks are sufficiently dry, and the weather so cool that danger from moulding is past, put it up in small bundles, and set these together in large stooks in the field, bound securely at the top.

Plowing for Spring Crops.

This may be done at any time now, where the soil is not too light, and not likely to wash during the winter. The ground should be left rough to be subjected to the fullest action of the weather, freezing, thawing, wetting, drying, etc. Should a crop of weeds come up it will very likely pay to plow and harrow again.

Ridge Plowing

of stiff clays is often of great benefit. It is done by turning the furrows two and two together, so as to leave the land uniformly ridged. The ridges must run up and down the slopes; otherwise, in heavy rains, water will be held by the ridges until it breaks through somewhere, when there will be danger of a "wash-out." This system of winter fallowing involves plowing again in the spring, but shows its good effects in the crops.

Water.

If pure water does not flow at the barn look into means for securing it. Barnyard wells are convenient, but often dangerous to the health, if not of animals, certainly of men, who may drink at them. If the water from some spring can be led to the house or barn by all means bring it down. Use plain iron pipes or enamelled ones—not "galvanized" pipes. Zinc is a slow poison, but not quite so bad as lead. A well on higher ground will often furnish flowing water, conducted by a siphon, at the level of the buildings. No well should be dug at a less distance than 300 feet from a barnyard, cesspool, or privy vault.

Buildings.

This month offers the most favorable time usually for the painting and repair of farm buildings, and putting them in order for the winter. A great part of this work may be well done during this month by the farmer and his boys.

GOVERNOR HOYT'S SPEECH AT THE OPENING OF THE STATE FAIR.

Owing to the rain on Monday the attendance at the formal opening of the State Fair in the Permanent Exhibition buildings, Philadelphia, was not as large as expected, though there was still a fair showing of visitors. Speaking of the Pennsylvania farmers Governor Hoyt in his address said:

And while I might look about me and safely say your day of triumph has come—curtly declare the State Fair formally open. I wish to add a word or two which I shall take occasion to say whenever I find a little knot of our good friends "the Grangers," together, if they will listen. That third of the people of Pennsylvania who are upon their arms are best off; the most happy and most independent third of all our population; best off in the value of their land, which, if high, are high because they will bring their price in the market; best off in the steady compensating return for their labor; free from the commercial disasters of other callings; free from the mental worry of other pursuits, and vastly more free than any class from the visitation of the Sheriff. There are gentlemen who constantly bemoan the farmer's situation; the high prices of land, which constitute his capital in trade; the low prices of some of the products grown in the West, and the low rates of freights at which the railroads deliver them at our seaboard and thence by ships to the consumers in Europe. But, sir, the Pennsylvania farmer is still the master of the situation. He is here with his wife and children, in command of every physical and moral resource which the highest civilization can give. His life is no longer a struggle for bare existence—he is really in the enjoyment of luxuries. Everywhere see their beautiful homes, their great filled barns, their trimmed hedges and white fences, their bright patches of flowers. Consider their social privileges—among friends and kindred—their schools and churches, the books and newspapers—all in their daily reach and daily enjoyment. Our population increases, but our square miles does not, and I suppose some of us must "go West." The sturdy householder raises a half dozen children, but not a half dozen farms, and some must leave the old roof-tree. But my advice to as many as can, is to continue to cast their lines in this good old State. The Pennsylvania farmer will not lose his supremacy. Possibly, for the present, some of our Western farmers can raise wheat and beef cheaper than we. I do not regret it. But this cannot continue long. The yearly value of their acres is rapidly decreasing. They must do what we must do—put back on the land some of that which we yearly take off. We have been doing it for a hundred years, and our great problem is, how best to fertilize our lands, how to regenerate and make good the waste. Our struggle ought not to be to raise the price of food, but to increase the quantity of our products. Time and brains and science will yet do that for us. The Pennsylvania farmer must, as he can, adopt his products to the never-failing market which our great cities, towns and mining manufacturing centres everywhere give him—great food-consuming communities like Philadelphia, Pittsburg, Scranton, Reading and Harrisburg. Here he is without a competitor. He has a monopoly in all perishable articles of food, and these form the great bulk of what we eat—fruits, vegetables, milk, and the long list of good things which in this temperate zone we make our daily bill of fare. You can have no quarrel with these towns and cities which furnish your customers, and which in turn make the clothes you wear, the carpets you tread, the stoves which warm your houses, and mine the coal which fires them, which make your bedsteads and sausage-cutters,

your garden hoes and school books, your harness and your fruit cans.

Seek new forms of industry. Just now the Lancaster county farmer seems to have a bonanza in his tobacco raising. The alarmist says he is wrong, but I suspect the Lancaster farmer knows best. Right here to-day, is proposed a most promising and attractive industry which may employ profitably our wives and children. I mean the culture of silk which the ladies of the Silk Society are pressing upon your notice. This enterprise should attract your careful attention.

Nor can the Pennsylvania farmer have any quarrel with the Western farmer and the railroads, which cheapen the price of a few articles of food, by means of which all these laborers are enabled to live in our midst instead of being sent west to live and work, when, perchance, wheat and beef are still cheaper. Let us be in favor of that policy which keeps our people employed and prosperous here in Pennsylvania. If the western farmer can equalize some of the hardships he undergoes and some of the losses of society and friends he suffers by cheap land and cheap food, let us bid him God speed. Let us remember that he is our son and our brother; that he sent him out from among us to make his heroic fight for wife and children and to found a family; that he and we jointly constitute the citizenship of the strongest, the freest, and the happiest people on the globe. It will increase our pride, and this kind of pride pays. I cannot detain you, my fellow-citizens, to work out these propositions, but they are true. Trust something to the energies and intelligence of the American people. Don't complain, don't whine, don't be pessimists. The Pennsylvania farmer, especially, has a "good thing," let him "keep it." Have some faith in the social laws under which we live as well as in the material laws which surround us. Finally, have some belief that perhaps the ruler of the universe will know how to order the conditions under which 50,000,000 of us are to "live and let live" quite as well as some of the human journeymen who are, around the street corners and the granges, trying to reconstruct society by acts of Assembly. Mr. President, I now tender you and your society the congratulations you deserve, and wish that you may enjoy the splendid success which you have won.

STRAWBERRY CULTURE—FALL PLANTING.

In setting out strawberry plants in autumn—that is, ordinary layer plants taken up from the bed in which they have taken root—nothing is gained in point of time over spring planting, so far as hastening the crop is concerned. A field or bed set in April or May, 1881, will bear a full crop in June, 1882. If the same plants were set in September or October, 1880, they would give a crop no sooner. We say "crop," as in either case a few berries may be borne, but none can be depended upon. While the crop is gained no sooner by planting six months or more earlier, there is, except in localities where autumn is short and winter long, much to be gained otherwise by fall planting. The soil is still warm and mellow, work is not so driving as in spring, and there is not the fear that a drouth may cut off or injure the plants before they become well established. Those engaged in growing strawberries on a large scale plant at both seasons, but the practice of fall planting is gaining favor. The plants set in autumn have a chance, as gardeners say, to "get hold of the soil"; their period of probation being past, they start and grow right on as soon as spring opens. Any apprehended danger from winter thaws and freezing is avoided by the mulch, which all of the plants should have for the best results. Those who would have a crop of strawberries next year can do so by setting out "pot-grown plants." These, as has been explained, are plants from runners which, instead of striking their roots in the soil of the bed, have a small pot of rich earth placed under them, in which they take root. These pot-grown plants may be taken up and set out in August or September, without receiving the least check, and will next spring give a fair or full crop, according to the strength of the plants and the time of striking and setting. All the dealers in plants now furnish those that are pot-grown at a price that can barely cover the cost of the extra labor required to produce them. How far apart? is one of the frequent questions. In field culture the rows should be far enough apart to allow the cultivator to run between them, and this will depend somewhat upon the implement used, three feet being usual, with the plants a foot apart in the rows. In garden culture rows two feet apart and a foot between the plants is most common. Other frequent questions are about manure and fertilizers. Large crops of large berries can only be picked by those who have been liberal to the plants. "No manure, no cabbages," is better understood and acted upon than "no manure, no strawberries." We can give no rules for the amount of manure. One successful grower, upon being asked how much he used, replied: "All I can get." If about to set a strawberry patch we should prepare it as the same soil would require for early cabbages, and then put on a little more manure. Wood ashes do wonders on strawberries in the way of making fine, vigorous plants, and guano, if a moderate dressing is given after the the fruit is set, will tell at picking time. There is nothing about strawberry culture that should deter whoever has the land from having the fruit in abundance. There is no reason why every farmer's family should not have strawberries, and of the best, and in abundance—yes, three times a day, and no one afraid to pass the saucer the second time. The notion that strawberries can be set only in the spring has done more than anything else to prevent their general culture. Every one knows how difficult it is upon the farm to get odd jobs done in the spring. This odd job of the strawberry bed can be better done now, this very month, than any other time. A few bushels from the abundant crop of wheat may well be set aside to pay for the plants. Let them by all means be bought and set this month!

THE WHEAT CROP FOR 1880-1881.

By far the larger number of the farmers of this country are more deeply interested in the wheat crop than any other which is raised. Other crops may be as universally raised as it, and some, perhaps, of equal or greater money value, like that of hay, but none other can be relied upon as can the wheat, for the realization of the ready money as soon as it can be gotten into the market. Wheat is looked upon "as good as gold," for it is a cash article that can be depended upon almost to the very day to furnish the grower with the wherewithal to pay the demands which, unfortunately, too many of them find are being ready for presentation at this auspicious moment, and which, in order to maintain his credit in the future, he finds it his interest, as well as his duty, to respond to with as much despatch as possible. The farmer who is so far ahead in his pecuniary affairs as to be enabled to keep up a balance in his favor at the bank, may afford to delay his sales for a more favorable market in the distance, though it is generally a doubtful case whether he may not find that he has made a mistake, and may have to sell eventually at a price which will not net him what he would have realized at an earlier date, suffering the losses contingent upon the storage of his grain by rats and mice of more than one species, the shrinkage in weight, the interest of the money if it has been in hand, and dangers from fire and flood and other elements. The forehanded farmer, we say, may bide his time and run the risk of all such contingences, but the impecunious class are obliged to dispose of his crop at whatever price he may be able to obtain as early as he can deliver it to the miller or ship it to the merchant in the city. Both classes, however, are naturally anxious to secure as large an increase from the seed sown as possible, and will necessarily be looking about for the best means of securing the end in view, some of which are as certain as that there is to be a seedtime and harvest, and the details of which can no more be neglected than the failure to sow and to reap, to enable him to reap a reasonable reward for his labor and the use of his capital. These prerequisites to success may be classed, first, in the proper preparation of the land for the reception of the seed; secondly, in the committing to the ground good and healthy seed, deposited in due season; and thirdly, the application of such fertilizers and manures as his soil may require, if it has not already attained that fertility by good cultivation which will render any further outlay in that direction unnecessary, having secured a condition by the application of fertilizers and the turning in of green crops in the preceding operations of his system of farming.

The best way for the preparing of the ground for the reception of the crops in the fall is to study the results of the practice of the most intelligent of their class, added to their own experience. The large average yield of the wheat crop of England, reaching from 40 to 45 bushels to the acre, is due in a great measure to the great care taken to prepare the ground for the best growth of the wheat plant before the grain is sown. The fields that are imperfectly plowed and indifferently harrowed are far too common with us, and until the soil is made deep and mellow by thorough tillage all the manure and artificial fertilizers we may apply will not bring the yield of our fall sown crops to the most profitable point. A little extra work in preparation will many times bring a large margin of profit when it comes to gather the harvest. The English farmers, nineteen-twentieths of whom are renters, cannot afford to do work on the farms in a slovenly or imperfect manner; the heavy demand upon him, in addition to his rental, for the payment of taxes, tithes or church rates and other requirements, render it absolutely necessary that every available means shall be used to secure such a return for his labor as will enable him to meet promptly, as he must do, all these demands, which of themselves would be sufficient in this country to purchase the fee-simple of a farm of equal size to that with which he is entrusted by a landlord, who reserves in his lease the dictation of the mode of farming, the quantity and kind of fertilizers to be used, and the crops to be cultivated. He must also show a bank account upon which he is able to draw for the payment of his expenses, for the laws in such cases are generally made in favor of the landlord, who is also the lawmaker. The average in this country is not more than 12 to 15 bushels wheat per acre, whilst that of the English farmer is three to four times that amount. The land is required to be kept up in England to a condition of fertility equal, when the lease of the renter expires, to that which it possessed on his taking possession, and definite rules are laid down in the lease to secure this object.

Wheat is the staple crop of this country, to the greatest number of farmers, and brings in more money in return for labor and expenses than any other. Breadstuffs are always in demand in the market, even if the crops be abundant, and the price of all agricultural produce low. All other operations in the farm are, by a proper rotation in farming, directed to the producing of good crops of wheat, and they can, by good cultivation, be at all times obtained, unless under exceptional adverse circumstances.

Experience has proved that the best preparation for fall wheat is a well prepared summer fallow, and especially so on heavy soil, rich in lime and phosphates. Lime in some form is necessary to the growth of a good crop of wheat. When deficient in the soil it should be applied, spreading it on the land and harrowing it in just before sowing the wheat. A light dressing, even twenty bushels per acre, will make a great improvement in

the crop; or superphosphate, from 100 to 300 pounds to the acre, the larger quantity the better, would be very beneficial.

The seed bed should not be too loose and fine, as is too often the case. If too loose the heavy fall rains will compress the soil, and the growth of the plant will be impeded. Wheat always succeeds better in a tolerably compact soil that is not too loose.

In order to have the land in the best condition for wheat it should be plowed deep for the previous crop the previous fall, and then cross-plowed to the depth of not more than six inches and the wheat drilled in. The land on which fall wheat is to be sown should be free from any liability to retain surface water. This is of the greatest importance. The freezing of surface water is the greatest cause of fall wheat being winter-killed. If the land be free from water and otherwise in good condition, there is little danger of the wheat plant being killed by frost. If the land be not underdrained or naturally dry, it is necessary to make open furrows to prevent water lying on or in the soil, and the earth thrown out of the soil, scattered evenly with a shovel.

The proper time for sowing depends on circumstances, Early sowing has produced heavy crops. When wheat was sown the last fortnight in August or the first week in September, the roots had firm hold of the soil, and the abundant vegetation served to shelter them from the winter killing. There was, it seems, somewhat besides early sowing in its favor. The land was not then so denuded of all shelter, and the fertility of the virgin soil was not exhausted. The early sowing on well-prepared soil, however, was a good protection. But there is now great risk in early sowing. The early-sown wheat is apt to suffer most from the attacks of the Hessian fly and the wire worm; so of two evils we chose the least dangerous, and as protection from the insects, sow as late as possible.

In a former number we gave a report made to the late millers' convention as to the best varieties of wheat for their purpose. The wheat-grower must decide for himself the best for his interest to sow, and govern himself accordingly. We hope that new varieties which may have been found valuable may be introduced and tried on a small scale. The admirable mail facilities now furnished by the post-office laws for this purpose are well adapted to and serviceable in the introduction of seed. The *Prairie Farmer* (Chicago) says that Wm. T. Hearne, of Lexington, Ky., who made Short-horn sales lately, is a great wheat-grower, and generally outstrips his neighbors from ten to twenty bushels to the acre. He is a great fancier of the silver chaff, of which he raised 70 acres, and made an average of 27½ bushels. Last year he bettered that by twenty bushels to the acre. The fly hurt him this year, and he thinks that the free use of salt only saved it.

And the California *Rural Press* says the best sample of wheat which has come under its notice, was from Vallejo. It was of the Snow-flake variety, the kernels were very large and plump, and the heads well filled. It adds: "It is easy to believe that some acres of such wheat will go 60 bushels, and the average of 200 acres, we are assured, will be over 40 bushels per acre. From the look of the sample we think the figures are within the facts. Such wheat should be sown, every kernel of it. It is too fine to grind up until everyone is supplied with such seed."—*Baltimore American.*

POMOLOGY.

For Our Fruit Growing Readers.

Major Freas, of the Germantown *Telegraph*, has for nearly half a century been an authority on questions of pomology. An extensive fruit grower himself, he has carefully noted everything pertaining to this department of industry, and what he says may therefore be accepted as the dictum of a man who knows whereof he speaks. A week ago he published the following article which may be of service to all who contemplate setting out trees or the culture of fruits of any kind.

Our Revised Fruit List.

Since the last publication of our fruit list, we have for satisfactory reasons changed our opinion with respect to a few of the fruits which it contained. But in regard to the list as a whole we can see no just grounds for disturbing it. Indeed, we do not see how it can be improved for this section of country, or as a general list for all the Middle States. Some of each of the separate selections may not do well upon one premises that will succeed admirably on another. Each grower must find out for for himself the particular apples, pears etc., especially adopted to his soil and location.

According to our present preference, we should select the following for our own planting:

Standard Pears: 1. Giffard. 2. Doyenne d'Ete. 3. Early Catharine. 4. Kirtland. 5. Bloodgood. 6. Summer Julienne. 7. Tyson. 8. Brandywine. 9. Bartlett. 10. Belle Lucrative. 11. Manning's Elizabeth. 12. Seckel. 13. Howell. 14. Anjou. 15. Shelden. 16. St. Ghislan. 17. Lawrence. 18 Reading.

For those who may desire a smaller number, we should select: 1. Giffard. 2. Early Catharine. 3. Bloodgood. 4. Tyson. 5. Bartlett. 6. Belle Lucrative. 7. Seckel. 8. Lawrence. 9. Reading. They ripen in about the order they are arranged. In the above list, from No. 1 to 8 are summer varieties, from 9 to 16 autumn (early and late), and 17 and 18 winter, thus affording a sufficient number for each of the periods of the best known sorts for this region.

Dwarf Pears: 1. St. Michael D'Archange. 2. Bartlett. 3. Comice. 4. Rostiezer. 5. Diel. 6. Tyson. 7. Belle Lucrative. 8. Lawrence. 9. Ott. 10. Louise Boonne. 11. Bosc. 12. Boussock. 13. Glout Morceau.

Apples: 1. Maiden's Blush. 2. Baldwin. 3. Smokehouse. 4. Northern Spy. 5. Smith's Cider. 6. Fallawater. 7. Cornell's Fancy. 8. Red Astrachan. 9. Wagener. 10. Porter. 11. Gravenstein. 12. Tompkins' King. 13. Roxbury Russett.

We add to the foregoing list Tompkin's King and Roxbury Russet, both most excellent varieties; indeed, the King is regarded by some as unsurpassed. Northern Spy is also restored.

Peaches: 1. Crawford's Early. 2. Hale's Early. 3. York's Early. 4. Old Mixon. 5. Crawford's Late. 6. Ward's Late. 7. Smock's Late. 8. Susquehanna.

There is no solid reason to change this list, so far as it goes. We suggest to peach growers to favor us with a list of their own, and a few did, but where they differed from ours we did not deem an improvement.

Grapes: 1. Telegraph. 2. Concord. 3. Hartford. 4. Clinton. 5. Salem. 6. Rogers' No. 32.

We have added to the list Rogers' No. 32, which, should it maintain its present character, will be the very best out-door variety cultivated. It is a beautiful pink, or rather maroon, colored grape, and at times is transparent. It bears regular crops yearly with us. Clinton, in the foregoing list, is only for wine, and is probably the very best for that purpose. We also add the *Brighton*, a maroon color, as promising well. It is, however, a small berry and rather straggling bunches, but is almost pulpless, and of fair quality. The *Prentiss* is another new grape, somewhat larger than the Delaware, of good quality and scarcely a perceptible pulp. It promises to take the lead of all the white varieties. The bunches are compact and of fair size.

Cherries: 1 May Bigarreau. 2. Belle de Choisy. 3. Black Tartarian. 4. Black Eagle. 5. Black Hawk. 6. Elton. 7. Downer's Late. 8. Early Richmond. 9. Early Purple Guigne. 10. Delaware Bleeding Heart.

The ripening of the list will range from the earliest to the latest, thus carrying one through the whole cherry season. No one can go amiss in adopting this list.

Raspberries: 1. Hornet. 2. Herstine. 3. Philadelphia. 1. Brandywine.

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

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.

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. Keep clear of the giants and their big prices.

Blackberries: 1. New Rochelle. 2. Missouri Cluster. 3. Wilson's Early. 4. Snyder.

The Snyder, a new western blackberry, is highly spoken of at distant points, but we prefer to wait another year before recommending it, in the meantime giving it a trial.

It is better that those who intend to cultivate fruit and have to make purchases, to take this list with them to the nursery, and adhere to it as far as possible.

In selecting fruit trees, or any others, be careful to choose those with smooth, healthy-looking bark, 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.

WATERING PLANTS IN POTS.

Indiscriminate watering produces most disastrous results, and especially this is the case during Winter, when vegetation is in a semi-dormant condition, and the atmosphere so surcharged with moisture that there is no evaporation going on from the leaves. In Spring and early Summer, these act as a safety-valve, and the air being then naturally drier, a greater demand is made on them, and this goes on increasing from day to day, according to the state of the weather. It will thus be seen that the foliage should in a great measure regulate the supply of water, for, as a rule, the larger it is, or the more there is of it, the greater the drain on the roots and the less risk of giving too much. Not only have the leaves much to do with the quantity of water that plants will absorb, but the amount of bloom they have to carry must likewise be taken into account, for when this is heavy the tax is so great that unless proper assistance be given exhaustion supervenes, and this disorganizes the whole system in such a manner that they are a long time recovering.

If we take azaleas and camellias, and only think of the vast surface of leaf and petal there is when they are in flower, the whole of which is full of pores which are constantly exhaling moisture, we cannot be surprised at the quantity of water required at this season to keep them in health. If these plants are well drained, it is surprising the quantity they will take at this season and until growth is complete; indeed, dryness at any time is fatal to the success of either, and is a frequent cause of bud dropping; but though they will bear much moisture, anything approaching to saturation, to cause a stagnant or sour state of the soil, should be carefully avoided, as this soon throws the roots out of health. The thing is to let the ball get into such a condition as to be just inclining to be dry, and then so to water as to insure a thorough soaking of every part, after which no more should be given till that is used up, and so on the year through.

It is the incessant driblets that do the harm, for there is either too much or too lit-

tle, for it frequently occurs that the top soil looks sodden when the portion where the roots are supposed to be feeding is almost dry. This is often the case with azaleas and other hard-wooded plants, growing in peat, which, rammed in hard, as they require to be, become so compact and close that water does not penetrate readily, but makes its escape at the sides, where it cracks away from the pot. Even where this does not take place there is rarely sufficient space left when potting to hold enough water to thoroughly moisten the whole of the soil, and unless they are gone over two or three times the middle of the ball is never reached; and this is why it is that plants of this discription are sometimes seen in a starved condition.

A well trained eye sees at a glance, in a general way, when water is required, but a plant that has had on it the driblet system is deceiving, and it is only by testing its weight, or by turning it out of the pot, so as to make a thorough examination, that a correct opinion can be formed, as to look at it and come to a conclusion is mere guess-work and can not in any way be depended on. The test by weight may be easily made by comparison with others, in the same sized pot, and that are growing in the same kind of soil, as those that are in a proper condition in regard to moisture will weigh several pounds heavier than those that are not so, and in this way they may be detected at once.

THE WHEAT CROP.

Reports to *Bradstreet's* from the entire wheat growing regions show that the crop for 1880 has been generally overestimated. The results of the threshing have not borne out the estimates made while the wheat was being gathered or in the shock. The returns are down to September 25, and indicate that the total out-turn of wheat for 1880 will not be in excess of 465,691,000 bushels. The returns from the great wheat growing States of Illinois and Iowa are quite up to earlier estimates, but it is probable, when the full returns of the threshing in those States are summed up, that the total product of this country will not exceed 455,000,000, as compared with the estimate of the Agricultural Department for 1879 of 488,600,000 bushels. The export of wheat from the United States last year was in round numbers 185,000,000 bushels. It is estimated that the requirement for home consumption from this year's crop will be 261,000,000 bushels. On this basis and taking the total out-turn at 455,000,000 bushels, there will remain about 184,000,000 surplus for export from the wheat crop of 1880. A general summary of the wheat crop of 1880 with reference to territorial divisions is given as follows: Western States, 338,067,000 bushels; Southern States, 41,929,000; California and Oregon, 38,000,000; Middle States, 36,595,000; Colorado, Nevada and Territories, 10,000,000; New England, 1,100,000. Grand total, 465,691,000.

APPLES, APPLE JUICE, CIDER, VINEGAR.

This is most emphatically "the bearing year" with apples. Not only are well kept orchards in full bearing, but every superannuated and half-decayed tree, and every scrub and chance seedling by the roadside, is loaded in a manner seldom seen in a lifetime. With this abundance it is evident that with apples there will be a glut in the market. There will be no room except "higher up," and those who send poor fruit to market had better use their barrels for fire-wood, and save the freight charges. There is always a certain demand to be met, but this year only the select fruit will supply it. In years of plenty, careful selection and neat packages tell. The almost daily inquiries as to fruit driers show that preparations are being made to dry a share of this abundance, and we hope by this article to anticipate the inquiries that will soon be made as to disposing of the fruit in the various liquid forms. Apple juice, as it comes from the press, or "sweet cider," is liked by many, and we have inquiries as to keeping it in an unfermented state. Preserving powders are advertised, and some of these, from their effectiveness in preserving fruit, will no doubt keep fruit juice equally well. The majority will wish to preserve their sweet cider without addition, and these can treat it by the same method used in canning fauit. Heat the cider to the boiling point, bottle and cork it while still hot. When apple juice is exposed to the air the natural ferment it contains causes a change to take place. The sugar in the juice is converted into alcohol, and carbonic acid is given off. This process may be carried on until all the sugar is decomposed, when it is "hard cider." The fermentation may be arrested at the desired point by bottling, and sparkling cider will be the result. This, which is also called "champange cider," can only be produced by bottling before the fermentation is quite finished. The best still cider is made from late ripening apples, when the weather is cool, fermented slowly at as low a temperature as possible, taking care to exclude the access of air; when fermentation has quite ceased the cider should be racked off into clean cask and kept securely bunged or bottled. The great use of apples in this year will be to make vinegar. In the fermentation of cider the sugar of the apple juice is converted into alcohol, and in making vinegar that alcohol is changed into acetic acid. The conditions of this change are full exposure to the air and a high temperature. The richer the cider in alcohol the stronger will be the vinegar, and the more slowly will the change take place. Ordinarily the cider is put away in the cellar or some outbuilding, and in time, it may be two or three years or more, will be found to be changed into vinegar. Those who have heard of the "quick vinegar process" think it can be applied to cider; we are often asked to give a description of it. In this process a liquid containing alcohol, usually in the form of cheap whisky, is converted into vinegar in a few hours. But this is not applicable to cider, for in the fermentation of cider or other fruit juices the change into vinegar is accompanied by the growth of a very low form of plant, "the mother," as it is usually called, and this would so clog up the apparatus of the quick method as to soon put a stop to it. Still the change of cider may be greatly hastened. Those who make cider vinegar on a large scale have a house especially for the work, and this is heated to about 70°. Vinegar can not be made rapidly at a much lower temperature. Exposure to the air is important, hence the casks are not filled, but only partly so, in order to expose a broad surface of the liquid to the action of the air. Exposure is increased by frequently transferring the cider from one cask to another, letting it run very slowly. Exposure can be promoted by allowing the partly formed vinegar to slowly run down a long trough, and also by allowing it to trickle over corn cobs placed in a cask, the cobs having been previously washed and soaked in good vinegar. Old vinegar acts as a ferment, and hastens the change, and the mixing of new and partly formed vinegar with a portion of old and strong vinegar helps the change. Another method to hasten vinegar making is to add yeast to cider, or what produces the same effect, the "mother" from vinegar barrels. The conditions for the most rapid conversion of cider into vinegar may be summed up: A temperature of at least 70°, all possible exposure to the air, the addition of old vinegar to the new or the use of "mother." It should be remembered that the weaker will be the vinegar and more rapid the change.

BLIGHT OF FRUIT TREES.

Prof. T. J. Burrill, of the Illinois Industrial University, read a paper before Section B, of the Association for the Advancement of Science, on the "Anthrax of Fruit Trees." The wide-spread and disastrous disease of the pear tree, commonly known as fire-blight, and that no less prevalent one known as twig-blight of the apple tree, are due to the same agency. They are identical in origin, and as similar in pathological characteristics as are the trees themselves. The quince, Lombardy poplar, American aspen and some other trees suffer from the same or similar affections.

The immediate cause of the disease is a living organism which produces butyric fermentation of the material stored in the cells, especially those of the liber. This organism is allied to, if not specifically identical with, the butyric vibrione of Pasteur the *Bacillus amylobacter*, of Van Tieghem. After recounting the history of the disease in this country, which goes back at least a century, the experiments which were made with the specific poison or ferment, in inoculating healthy trees and in other ways, were recounted in detail. After it was determined that a specific living organism, the *Bacillus* named above, was always present in the liber-cells of the affected trees or branches, an isolated acre of ground upon which there were 94 pear trees of different ages and varieties was selected for the experiments. The method of experiment was to cut off small portions of the bark of diseased trees and insert them beneath the bark of other healthy trees, as in the ordinary process of budding. The results of these experiments are given in a table, which shows that a very large percentage of the experiments were perfectly successful in communicating the blight from the diseased tree to the previously healthy one. Sixty-three per cent. of all the pear trees thus inoculated became diseased. Of the pear trees that were inoculated with the virus from diseased pear trees 54 per cent. became affected. Of those pear trees inoculated from blighting apple trees 73 per cent. received the disease. When the poison was taken from the pear trees to inoculate apple trees the percentage of successful operations was much below that obtained when the process was reversed, probably because the apple tree is the more hardy of the two. The virus seems to be quite harmless when it is applied to the epidermal surface of the leaves of a tree; it does not seem to enter through the stomata. Of the entire number of recorded observation, 34.78 per cent. were successful, while of the whole number of inoculations with the knife, 52.07 per cent. were effective.

The organism to which the disease is attributed is so minute that a very great magnifying power is necessary to enable one to study it or to make out its form. It assumes various shapes during its development, and these different forms may usually be seen at one view in the microscope. The most characteristic form is that of two oblong joints with rounded ends. Their transverse diameter is about .002 millimetres, and the length of each joint about .003. They are comparatively thicker and shorter than the common *Bacterium termo*, and they move less rapidly. If this should prove to be the organism which is the well-known agent in converting starch, sugar, etc., into butyric acid, hydrogen, and carbon dioxide, this would not invalidate the assumption that it is the cause of this disease, but it might render the discovery of remedial treatment less hopeful. The most conspicuous change in the tissues of the affected plants revealed by the microscope is the almost total disappearance of starch from the cells.

ABSORBENTS FOR STABLE MANURES.

A correspondent of the *Country Gentleman* says: Next to underdraining, where needed, the best paying labor on the farm is to secure materials for use in the stables. There are many things, such as chaff, muck, saw-dust, and even dry soil, or, better, road dust; but the best of all, next to chaff, is leaf mould from the woods. This may be gathered in the fall after the leaves have fallen, and leaves and leaf dust taken up together. Large quantities may be obtained in a short time at only the cost of the labor, which is light for both man and team. Besides its use for stable

bedding it will serve well for banking buildings, and unless manure is required, is superior for winter mulching, being porous and thus resisting the frost. In the spring it may be worked into the soil with advantage. For a stable absorbent only the best time to secure it in the best condition is before the leaves drop, when it will be dry and powdery, and mix admirably with the urine and the dung of the stable, making a "short" manure, light and pleasant to handle, and all fertilizing properties of the stable are secured, which is saving one-half to three-fourths on the old, careless practice.

Where swampy land is to be reclaimed the muck may be used with profit in the stables, though it is not so dry, and consequently not so good an absorbant as leaf mould; neither is it as rich in fertilizing material. Where clover is raised for seed an excellent absorbent is at hand in the chaff. It is dry, and, therefore, of a superior value. So with the chaff of the grains. There is some feeding value in this, and also some dust, which makes it objectionable as a feed, both of which add to the value of the manure. We thus have one of the very best of stable absorbents at hand ready for use. Sawdust when dry and cheaply obtained, is a good absorbent, though of little manurial value. It serves well to lighten up clay and give texture to sand.

These materials are all fine, making a short manure, which can be applied as easily as so much earth, is readily mixed with the surface soil, and may be drawn and applied at any time. Extensively and properly used, they would revolutionize the manure department of the farm, making the stables and the surrounding of the barn clean and odorless—the manure clean and light to handle—not the objectionable, water-soaked article which has so long been a dread and a nuisance, and which is still to a great extent in use. The absorbents themselves contain some fertility; they are of more benefit as correctors of the texture of the soil, but their chief value is in what they save of the manure—never less than one-half, and nearer three-fourths. The principal leak of the farm is at the barn, and the remedy is the use of fine, dry absorbents.

LIGHT UPON LIGHT.

Early in the century people found the day almost long enough, the firelight sufficing fairly for such employments as engaged the evening, and the pine knot served as helper to many a boy in picking his way through such simple education as the scanty volumes then procurable afforded. The candle, however, is almost as old as the rushlight, and even the Romans (and yet earlier nations) had oil lamps. The "tallow dip"—the making of it by successive dippings, the process of enlargement growing faster as it progressed, on the principle familiar to every boy that ever rolled a snow ball, and its spluttering light—are among the recollections of most of us. Then came the oil lamp (or what was used with it), noisome, tedious and unsatisfactory. Then the "fluid," as it was called, which was neither greasy nor slow in action (sometimes much too rapid), but was scarcely less unsatisfactory. Then came the discovery of kerosene—which might be called coal in a fluid form—the first artificial well having been sunk just twenty-one years ago. The annual production of this is now some 15,000,000 barrels. In the ten years from 1870 to 1879 to 1879, 1,908,000,000 gallons of illuminating oil alone, valued at $378,000,000, were exported. Reckoning by value, cotton stands at the head of our export commodities; bread and breadstuffs stands second, for 1879 was the first year when the value of their total exports outranked cotton; provisions—covering hog products, cheese, butter, preserved meats, &c.—stand third, and petroleum is fourth, thus easily ranking as one of the great staples. It is estimated that the export of petroleum is about two-thirds of the total, a larger proportion of it than of any other article except cotton thus being sent abroad. The average value per gallon of the refined illuminating oil exported was 53 cents in 1864, 73 in 1865, 30 in 1870, 23 in 1873, 17 in 1874, 14 in 1876, and 11 in 1879. The extraordinary cheapness of the article is thus most forcibly shown, and this cheapness is the result of its unparallelled abundance and the trivial cost of getting it; were all the gifts of nature as nearly true gifts by the bountifulness and spontaneity of their yield, we should have time to grow lazy and this country would be the promised land to all who were not too lazy to come to it. The whale fishery of the United States, which in 1858 employed a tonnage of 198,500—the largest in any year—has shrunk until it employs less than 50,000 tons. This looks like giving the whales a rest, all the world over, and Jules Verne might have written for us a veracious account of the discovery of petroleum by a whale of extraordinary age, wisdom, reflectiveness and benevolence; yet the price of crude whale oil has advanced only 5 cents per gallon, comparing 1860 with 1880, and that of crude sperm has declined from $1.40 in 1860 to $1.05 in 1880. We may ascribe this to the peaceful increase of the whale tribe in consequence of the discovery just hinted, or to the comparative ease of catching them, or to the enormous decrease in demand. For even for lubricating purposes the products of petroleum have largely taken the place of animal oils.

SEVERELY DRY TIMES.

An interesting record is that of severe droughts, as far back as the landing of the Pilgrims. How many thousand times are observations made like the following: "Such a cold season!" "Such a hot season!" "Such dry weather!" or "Such wet weather!" "Such high winds or calms," etc. Read the following list, showing number of days without rain:

In the summer of 1621, 24 days.
In the summer of 1630, 41 days.
In the summer of 1657, 75 days.
In the summer of 1662, 80 days.
In the summer of 1674, 45 days.
In the summer of 1688, 81 days.
In the summer of 1694, 6. days.
In the summer of 1705. 40 days.
In the summer of 1715, 46 days.
In the summer of 1728, 61 days.
In the summer of 1730, 92 days.
In the summer of 1741, 72 days.
In the summer of 1749, 108 days.
In the summer of 1755, 42 days.
In the summer of 1762, 123 days.
In the summer of 1773, 80 days.
In the summer of 1791, 82 days.
In the summer of 1812, 28 days.
In the summer of 1856, 24 days.
In the summer of 1871, 42 days.
In the summer of 1875, 26 days.
In the summer of 1876, 26 days.

It will be seen that the longest drough that ever occurred in America was in the summer of 1762. No rain fell from the 1st of May to the 1st of September. Many of the inhabitants sent to England for hay and grain.

THE WILLOWS AT ST. HELENA.

The willow which overshadows the first Bonaparte's grave is the second planted since the interment of the Emperor, and is 26 years old. Willows at St. Helena, it would appear, rarely attain a greater longevity than 30 years, and shoots are carefully preserved for planting. The ex-Empress Eugenie brought away some young shoots and a few violet and geranium plants from the tomb, some for presentation to her Majesty the Queen, and some call herself and her friends. This floral *cultus* has been going on for nearly 60 years. Writing to Lord Bathurst, immediately after the interment of Napoleon, Sir Hudson Lowe said: "I shall cause a railing to be put around the whole of the ground, it being necessary even for the preservation of the willows, many sprigs of which have already begun to be taken by different individuals who went down to visit the place after the funeral." This is the incident which, as Mr. Forsyth has well pointed out, was afterward so ludicrously yet so malevolently distorted by Antommarchi, who described Sir Hudson Lowe as turning pale and foaming at the mouth with rage when he witnessed this "spontaneous manifestation of feeling." "Hudson," as the Italian surgeon styled Sir Hudson Lowe, endeavored to check the "manifestation of feeling" by "anger and threats," but the guilty were numerous, and of all classes of people, and he could not, therefore, punish. When a new History of Political Lying comes to be written (and is not the time almost ripe for such a publication?) a special volume should be devoted to the various narratives of the captivity of Napoleon I.—*Pall Mall Gazette*.

TOBACCO.

"Nameloc" on the Pennsylvania Crop.

A correspondent of the Philadelphia *Ledger* Nameloc writes from this city under date of September 15:

Twenty-five years ago the tobacco grown in Pennsylvania did not perhaps amount to more than 1000 cases of 400 pounds each, and nearly all of this was the products of farms in Lancaster county. This tobacco did not meet the demand of the manufacturers of cheap cigars in Lancaster, and the quantity needed was brought from Kentucky. There is now grown in the State over 100,000 cases, of which Lancaster county this year claims at least 45,000.

The farmers during the past six weeks have been gathering their crops, and so far the weather has been quite favorable. The tobacco, or that cut some four or six weeks ago, has proved to be the best, as it escaped the ravages of the minute flea, or beetle, which has greatly damaged the tobacco cut a week ago and still standing in the field. This flea cuts small holes in the leaf, which greatly depreciates its value for wrappers, and therefore depreciates the price.

Whilst many more acres have been planted in tobacco this year than in 1879, the value of the crop will not be proportionately increased in consequence of the ravages of fleas, worms and other enemies of the "weed" but still there will be in most cases a very fair profit to the grower. The crop in the State last year amounted to 80,000 cases, which, it is estimated will yield about $5,000,000; the exact amount is not yet known, as the tobacco has just been inspected and now on sale. The crop for this year has been estimated by those who have given the subject close attention as follows: Bucks county, 5000 cases; Delaware, 500 do.; Montgomery, 1500 do.; Chester, 7000 do.; Berks, 2500 do.; Lancaster, 40,000 do.; York, 18,000 do.; Lebanon, 5000 do.; Dauphin, 2000 do.; Cumberland, 3000 do.; Franklin, 1000 do.; Juniata, 1000 do.; Mifflin, 1000 do.; Northumberland, 3000 do.; Chester, 10,000 do.; Tioga, 3000 do.; Westmoreland, 300 do.; Philadelphia county, 1000 do.; miscellaneous, 1000 do.; making a total of 103,800 cases of 400 pounds each. This tobacco has been grown in patches from a half acre in extent to fields of sixty acres, and in most cases yielding from 1300 to 2000, and in some instances as high as 2100 pounds to the acre and realizing, on an average, thirteen cents per pound.

As a matter of interest, as well as to show the importance of the great industry, we give the following statement of the tobacco grown in the State for the several years past: In 1871 there were gathered 33,392 pounds, in 1872, the crop increased to 11,750,000 do.; in 1873, to 15,000,000, while in 1874 it fell of to 10,500,000. In 1875 there was an increase, and 16,000,000 pounds were gathered, while in 1876 only 13,200,000, but in 1877 there was a more general planting, particularly in this county, and the result was that 20,000,000 were harvested, which was again increased in 1878 to 22,800,000, and again in 1879, to 31,000,000 pounds, the largest, as well as about the best tobacco yet grown.

The present crop while the largest, amounting as we have said to 40,000,000 pounds, will

not, perhaps, realize much more than the crop of last year, in consequence of the ravages of worms, fleas, etc., and the short tobacco now being gathered. Mr. Diffenderfer, of this city, in his report to the Pennsylvania Board of Agriculture in reference to the crop of this season says "that early in May several insects began to ravage the plant beds, and among those sent in for examination, three separate insects were discovered, two of them known as the flea beetle, and the other the 'garden flea,' not larger than a grain of gunpowder." These, it is said, are likely to prove more hurtful to tobacco than either of the others, as they put in an appearance earlier, can bear more cold, puncture the tobacco leaves in the earlier stages, and are, besides so very minute as not to be readily observed.

It is said that, of the 100,000 cases grown in the State, over 10,000 cases will be used in Lancaster and York counties in the manufacture of cigars, while the remainder finds a ready market from Maine to California. There are, according to the directory of this city, seventy-five cigar manufacturers in the city; they are to be found also all over the county, as well as in the borough of York and the vicinity.

A GREAT APPLE JACK CROP.

This is apple jack year in Orange county, N. Y. The apple crop is large every other year. This year the fruit is unusually plenty. Apple jack was first discovered it is said, in New Jersey, and Sussex county was the great distilling place of that beverage. But Orange county, N. Y., long ago took the palm away from Sussex in the matter of making apple jack, and now turns out more of the liquor than any county in the United States. The stills of Orange county will this year yield not less than 75,000 gallons of apple jack. The farmers are gathering their apple crops together already, and the distillers have commenced operations.

The bulk of the apple whisky made in Orange county is required to supply the local demand. The farmer takes his pay for his apples at the still in the tempered juice of the fruit. He stores his cellar with apple jack with the same care that he stows away potatoes and cabbage for family use. The Orange county farmer who has not a "vial" of the native tipple to produce when visitors call, is considered as lacking in hospitality. Stored away in the cellars of the rural districts are casks of apple jack from which age has removed the Damascene edge, and given it the golden glow and oleaginous body that mark it as the pefect tipple to the taste of the iron-clad tillers of the country's soil.

Now and then apple whisky of this character will be offered for sale through the closing up of some estate. Public sales, including the cellars of well known connoisseurs in the product of the country's stills, will draw more representative people as prospective buyers than the sale of any other property that may be advertised, excepting, perhaps, a stable of Hambletonian colts. Whisky of the class named commands from $7 to $10 a gallon under the hammer. This is not the kind the bartender will set ont at any of the hostelries of the county. If the man asks for whisky at an Orange county bar, the bartender sets out apple jack. They drink little else in the community.

HOW A FAMOUS CHEESE IS MADE.

Perhaps the most justly celebrated cheese made on the Continent of Europe is the Swiss Gruyere. This is made mostly in huts, called chalets, high up among the Alps, at the time during which the pastures on the mountain-sides are accessible, and the huts habitable, say from the melting of the snow in May to the end of September, when men and animals descend for the Winter into the sheltered valleys thousands of feet below. The chalets are located in the midst of the mountain pastures on a spot safe from avalanches, and generally near to a small pond or spring of water, when such are available. Provisions from the valleys are carried up weekly to the chalets, and it is under such difficult and romantic circumstances that a cheese is made which for hundreds of years has been considered almost, if not quite, the best on the continent.

The milk, partly skimmed, or not, according to the quality of cheese desired to be made, is put into a great kettle and swung on a crane over a gentle fire, where it is allowed to attain a temperature of 77° Fahrenheit, when the kettle is swung off the fire and rennet is added to the milk. When coagulation has advanced far enough the curd is cut into as fine pieces as is practicable with the large wooden knife which is used for the purpose. The kettle is then swung over the fire again and the curd is taken up in small quantities in a porringer, and poured back through the fingers, whereby it is still more finely divided. Great importance is attached to this division of the curd, in order that each particle may be fully exposed to the action of the heat in the "cooking" process, which ensues up to a point when a temperature of 90° has been attained. The kettle is then immediately swung off the fire, and the waste of curd and whey stirred for some fifteen minutes longer; and if the cooking has been properly performed, the particles of curd have the appearance of bursted grains of rice swimming in the whey. The curd is then collected in a cloth, and great care is taken to expel all the whey. The salting of the cheese is also considered a delicate and important process. The salt is rubbed from time to time on the outside of the cheese, care being taken to discern when enough shall have been absorbed. The Gruyere cheeses are commonly three feet in diameter, and weigh over one hundred pounds. A successful cheese of this kind is like a soft yellow paste, which melts in the mouth, and it is filled with cavities about the size of a pea, one or two, say, in each square inch of cheese.

MANAGEMENT OF CREAM.

Under the head of "Dairy Management" the London *Agricultural Gazette* places some extracts from D. H. Milward's report to the Royal Agricultural Society of Ireland. Among them is the following: I think it of much consequence to the making of good cream butter that the milk should not be allowed to turn sour before skimming, and when ice is not used we must be guided by the temperature of the air as to the time it should be left; but, even were it possible to do so, I do no not advise that milk should be left longer than thirty-six hours before creaming, as by that time the greater part of the cream, if not the whole will have risen. Although apparently it may become thicker, it will increase in quantity in a very slight degree, as none but the poorest globules will have been added to what has been up; and by continued exposure very important chemical changes will have commenced, which it is advisable should not be allowed until a future stage. A considerable demand for sweet cream butter has been developed of late. This is made from cream of the very best quality and churned as soon as possible after skimming; but, as the quantity is small, the price must be higher to pay the farmers as well as the sour cream butter, and therefore it is not likely to be required except as a fancy article. Sour cream butter is an article of produce in which Irish farmers are more interested, as they nearly all make butter of that class. I think that much depends on the mode adopted in the souring of cream as to what the result shall be in the quality of the butter. The Danes appear to regard this as a stage in the progress of very vital consequence, and one on which the uniformity of quality very much depends. I cannot do better than refer to the souring systems described in the article on Denmark, as giving full instructions as to what I shall recommend. When possible it will always be found more satisfactory and productive of better butter to churn the cream every day when it has arrived at the proper stage of fermentation or souring, rather than to leave it to be done at longer intervals, when the different lots of cream put into a churning shall be of varying degrees of sourness. This cannot be done in small dairies, and it is one very important advantage that arises in the working of large ones. When it is impossible to churn every day much care will be required as is done in Normandy, to keep back the souring of the first lots of the cream, to get the whole to a proper degree before churning. While souring cream imparts a pleasant flavor to butter that sweet cream butter is wanting in, if carried too far it is likely to impart a strong taste and to injure it in other ways.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular monthly meeting of the Lancaster County Agricultural and Horticultural Society was held Monday afternoon October 4.

The following members and visitors were present: Joseph F. Witmer, Paradise; M. D. Kendig, Manor; Johnson Miller, Warwick; Calvin Cooper, Bird-in-hand; Dr. A. C. Green, city; Daniel Smeych, city; C. A. Gast, city; F. R. Diffenderffer, city; J. M. Johnston, city; W. H. Bollinger, Warwick; Dr. Wm. Compton, city; John H. Landis, Manor; Jas. Wood, Little Britain; Amos Groff, Conestoga Centre, C. L. Huusecker, Manheim; Israel L. Landis, city; E. S. Hoover, Manheim.

The meeting was called to order by the President, Jos. F. Witmer.

The reading of the minutes of the previous meeting was on motion dispensed with.

Hon. Prof. Roebuck was proposed and elected to membership.

Report of Committee.

The committee appointed to visit the Berks counyt fair made a report saying they had performed that duty and gave a glowing description of what they saw there. The fruit exhibit was reported as especially fine. Some criticism was made on the illegible manner in which the exhibits were marked.

The report was accepted and the committee received the thanks of the society for having gone there.

The President read a report of the receipts and expenditures of the late fair. From this it was found the receipts were $189.95 and the expenses $331.28, leaving a deficiency to be met of $181.73.

Calvin Cooper said the result was an unfortunate one, but for all that we were in honor bound to pay every cent. Neither would it exhaust what funds the society has in the treasury and what are due it.

On motion, the bills were ordered paid. If there was not enough money in the treasury a small loan was authorized to meet all the liabilities.

Dr. A. C. Green criticised the Board of Managers somewhat severely, and attributed the failure to the lack of proper energy and enterprise, offering to run the fair next year himself and pay $500 for the privilege.

Johnson Miller defended the board, and said he believed they did all they could. Our farmers do not take to fairs as some others do.

Calvin Cooper thought some of Dr. Greene's criticism was just, but it is a lamentable fact that our fairs are not what they should be. The fair was held too late. The political excitement also interfered with its success.

Ephraim S. Hoover, one of the managers, said, if Dr. Greene had lived in this county as long as he had he might not feel quite so sanguine. He had spoken with three-fourths of the persons who attend market and received hundreds of promises, yet the result was a failure. A large class of the people are indifferent to fairs, while many more are entirely opposed to them. But for all this he was not willing to give the matter up. We ought to have as good a fair as can be got up anywhere in the State, but experience had demonstrated the fact that we can't get up such a one. The political excitement was against the fair, but the speaker felt he did all he could toward success.

President Witmer said that the premium lists were thrice distributed among our business men, and yet we see the result. The apathy of the business men was extraordinary. They lent hardly any assistance, but were very willing to charge the society the top price for all that was needed.

Crop Reports.

Johnson Miller said early sown wheat is coming up finely—late not so well. Clover is still a failure. Apples are nearly all away—the crop is small. Corn husking is progressing.

Calvin Cooper said wheat looks a little delicate—much is not yet up. There are few apples left. Corn is an excellent crop. Tobacco is turning out badly. It is full of flea-eaten holes, and far from being what it should be.

Certificates.

Mr. Cooper also directed attention to the fact that certificates of merit were awarded at the late fair, and that such would have to be prepared.

On motion, Dr. Greene and F. R. Diffenderffer were appointed a committee to prepare such certificates, the number of copies to be a hundred.

The rain-fall for September was reported by M. D. Kendig as having been 1 1-10 inches.

Several questions proposed for discussion were on motion deferred until next meeting.

Election day coming the one after the one set for the next meeting of the Society, on motion the meeting of the Society will be held on the second Monday of November, instead of the first.

Dr. Greene donated a patent office report to the Society, for which its thanks were tendered him. It is valuable for containing a great many tests made of a certain plant which is a positive antidote to insects of all sorts.

There being no further business, Society adjourned.

Award of Premiums.

CLASS ONE—FRUITS.

John C. Linville, best collection of apples, first premium, $6; Lillie E. Gross, plate of lemons, special premium, 50 cents; Jacob Zecher, best half peck quinces, $1; Mrs. E. Liehty, best plate of quinces, 50 cents, best plate of Clairgean pears, 50 cents; N. L. Getz, best Northern spy apples, 50 cents; Abner J. Smeltz, half peck quinces, special premium; S. R. Hess & Son, best plate Gravenstein apples, 50 cents, and special premium; I. S. Bossler, best plate smoke house apples, 50 cents; best plate Maiden's Blush, 50 cents; Johnson Miller, best plates of rambo and Belle Flour, $1; Constine Beruhart, pomegranate tree, special premium; Wm. Weidle, best plates seckel, Duchesse, B. de-Anjou and Lawrence pears, $2; Harriet Weidle, second best basket of fruit, $1; Milton C. Cooper, second premium for collection of apples, $4; A. S. Keller, best plates Imperial, Baldwin, Fallawater and Seek-no-further apples, $2; white peaches, special premium; Enos H. Leaman, best plates Wine-sap and Smith's cider, $1; Dr. Wm. Blackwood, best plate peaches, 50 cents; Willis Geist, best stand Sheldon pears, 50 cents; Daniel Smeych, first premium, best collection pears, $6; best basket of fruit, $2; best seedling peach, $1; best Catawba grapes, $1; best foreign grapes, $2; E. S. Hoover, best plate King of Tompkins county apple, 50 cents; Henry Kauffman, for best plate of another variety, 50 cents; Mrs. Nath. Ellmaker, grapes, special premium; Lightner Henderson, Fallawater apples, special premium; Casper Hiller & Son, third premium on best collection of apples, $2; plate Chinese sand pear, special premium, best Concord, Isabella and Wilder grapes, $1.50; Daniel Smeych, Isabella grapes, special premium; Jacob M. Mayer, best Martha and Telegraph grapes, $1; Frances Kready, pears, special premium; Henry Eckert, Lady apple branch, special premium; G. F. Sprenger, second best half peck quinces, 50 cents.

CLASS TWO—FLOWERS.

Louisa Graver, pillow of tuberoses, 50 cents and special mention, cut tuberoses, 25 cents; S. Kennedy, 50 cents for petunias; S. G. Gensemer, sunflower; Casper Hiller and Jacob M. Mayer, ornamental grasses, favorable mention.

CLASS THREE—VEGETABLES.

N. L. Getz, Blue Peerless potatoes, first premium, 50 cents; S. R. Hess & Son, 12 varieties of potatoes, first premium, $2; L. C. Lyte, Canada Victor potatoes, first premium, 50 cents; 4 heads cauliflower, first premium, 25 cents; John B. Erb, peppers, first premium, 25 cents; Hallie A. Cooper, sugar beets, first premium, $2; Willis Geist, 2 cashaws, first premium, 50 cents; E. S. Hoover, Early Rose potatoes, first premium, 50 cents; Isaac K. Ryan, 6 turnips, first premium, 25 cents; Jacob M. Mayer, field pumpkins, first premium, $1.

CLASS FOUR—CEREALS.

John H. Bushong, one eighth barrel Southern wheat, 50 cents; N. L. Getz, white corn, 50 cents; Johnson Miller, white wheat, second premium, $4; 1 peck rye, first premium, $1; L. C. Lyte, yellow corn, first premium, 50 cents; John B. Erb, early yellow corn, second premium, 25 cents; Daniel Webster, best peck of wheat, 75 cents; Wm. H. Brosius, bushel yellow corn, 50 cents; Isaac K. Ryan, collection of corn, second premium, $4; Lightner Henderson, Timothy seed, 50 cents; John C. Linville, 10 varieties of wheat, first premium, $6; Peter Hershey, best peck of Fultz wheat, 75 cents.

CLASS FIVE—DOMESTIC PRODUCTIONS.

Mrs. E. Madigan, cherry wine, first premium, 50 cents; Amelia E. Gross, crock quince butter, first premium, 50 cents; Mrs. B. Benedict, clinton grape wine, first premium, 50 cents; Mrs. T. J. Davis, preserved peaches, first premium, 50 cents; John B. Erb, cider vinegar, special premium; Mrs. John Binkley, crab-apple jelly, first premium, 25 cents; Mrs. Charles Emmons, jar peaches, first premium, 25 cents; A. S. Keller, 6 bottles wine, first premium, $1; jar mixed pickles, first premium, 25 cents; Daniel Smeych, home-made soap, first premium, 25 cents; Mrs. Harriet B. Keller, 2 pounds of butter, first premium, $2; Miss Mary Geist, 2 pounds of butter, second premium, $1; Mrs. John H. Landis, crock apple butter, first premium, 50 cents; Mrs. Elizabeth Hoover, first best variety canned fruit, $2; Mrs. W. E. Heinitsh, tumbler quince preserves, first premium, 50 cents; Christ. H. Mayer, second best variety canned fruits, $1; Mrs. W. E. Heinitsh, home-made bread, first premium, $1; Frances Kready, blackberry wine eleven years old, first premium, 50 cents; apple jelly, 25 cents; canned pears, 25 cents.

CLASS SEVEN—TOBACCO.

Levi Jeffries, second premium, $1; M. B. Eshleman, 50 cents and favorable mention.

CLASSES 8, 9, 10, 11, 12—EMBROIDERY.

H. L. King, silk quilt, second premium, $1; Mrs. Jacob Ehrhart, first premium for embroidered lambrequin, 50 cents; 2 pairs knit infant socks, 50 cents; 2 silk embroidered flannel skirts, $2; embroidered crewel work, 50 cents; crochet scrap bag, 50 cents; and worsted lamp mat, 50 cents; Mrs. Emmageau Todd, agricultural wreath, first premium, 50 cents; Mary D. Lawrence, hand-made shirt, first premium, $1; Mrs. Jane Hess, worsted flowered rug, 50 cents; Leah Balmer, 2 sofa pillows, $1; 2 tidies, second premium, 50 cents; Parthenia Rathvon, towel, 50 cents; Miss Kate Schwilke, knit quilt, first premium, $2; Annie C. Rathvon, 2 pillow shams, first premium, $1; Mrs. Thomas J. Davis, embroidered slipper case, first premium, 50 cents; Miss Bella Hager, embroidered child's skirt, second premium, $1; Miss Amelia Bachler, Honiton lace handkerchief, first premium, $1; Mrs. E. H. Hager, crochet quilt, $2; Mrs. O. J. Dickey, patch quilt, $2; Mrs. A. W. Woodward, tidy, first premium, 50 cents; Mrs. Ruth A. Musser, 2 silk quilts, $2; Miss Emma Huber, home-made socks, $1; Mrs. Thos. J. Davis, child's embroidered silk dress, $2; Mrs. John Binkley, 2 pairs woolen socks, $1; Miss Kate Rink, muslin tidy, 50 cents; Mrs. Kate Barr, toilet set, 50 cents; Miss Mary E. Bachler, hair wreath, second premium, 50 cents; Miss Annie C. Himes, hand-made socks, $1; Louisa Graver, silk quilt, second premium, $1; embroidered pillow sham, $1, ornamental hair work, $1; Miss Maria Keller, knit rug, 50 cents; Mary E. Keller, bead embroidered sofa pillow, 50 cents; Mrs. Annie Crawford, braided sacque, 50 cents; Mrs. Isaac Stirk, table spread, $1; Laura Leib, point lace, 50 cents, knit rug, 50 cents, table cover, $1; H. H. Shenk, afghan, $1; Sallie H. Villee, braided collar, 25 cents.

CLASS THIRTEEN—CABINET WARE.

Walter A. Heinitsh, first premium for parlor suit, $3; first premium for chamber suit, $2; favorable mention for bookcase; first premium for hat rack, $1; meritorious mention of dining chairs, library table, extension table and commode.

CLASS FOURTEEN—SADDLERY.

Ringwalt & Zecher, favorable mention for horse collars; Amos Ringwalt, first premium, $2, for best double harness; first premium, $1, for best display of horse blankets; second premium, $1, for display of saddlery; M. Haberbush, first premium for best single harness, $1; first premium for lady's saddle, $1; first premium for gent's saddle, $1; for riding bridles, favorable mention; first premium for driving whips, $1; first premium for best display $2.

CLASS FIFTEEN—MISCELLANEOUS.

John A. Charles, 50 cents for crayon pictures; Mrs. Thomas J. Davis and Miss Bella Hager, 50 cents each for hand-painted porcelain placques; William Brady, $2 for edge tools; Francis Bachler, old pennies, $1; Heise & Kauffman, feed and tobacco steamer, $2, and certificate of merit; H. H. Heise, hydraulic ram, $1, and certificate of merit; Julia A. Keller, panel pictures, 50 cents; A. F. Spencer, case of files, $1, and certificate of merit; A. L. Kreider, prints, $1 and certificate of merit; High & Martin, $2 each for display of glassware and chinaware; W. F. McSparran, penmanship, 50 cents; Isaac Stoner, $2 for best display of fancy articles; I. L. Landis, $1 for Iske's bread and meat slicer, and $1 for post-hole digger. Favorable mention was given Mrs. E. Madigan for ornamental vases; B. G. Lefevre, for Davis' vertical feed sewing machine; Israel L. Rathvon, crayons; Leah Balmer, chromo; John B. Erb, mottoes; Inquirer Printing and Publishing Company, "Legal Rights and Duties of Farmers;" Mrs. Ruth, waiter 150 years old; Adele Barr, crayon portrait; Plant Club, forest flowers; Julia A. Keller, oil and crayon drawings; John G. Bryden, pen and pencil drawings; M. S. Bolmer, china vases; Samuel H. Roddman, chickens; Isaac L. Landis, hay tedder and rake; Mrs. Kerfoot, ornamented jar; Walter Madigan, old papers; Anthony Iske, copying and writing board, tobacco spray, fly bush, secretary table; J. P. Lebzelter, spokes and felloes; H. L. Stehman & Co., cigars and tobacco; J. F. Tanner, rstary harrow; S. Pennock & Son, road machine.

Certificates of merit were awarded Heise and Kauffman for glass ball castors; North & Co., organs; Alex. McKillips, organs, piano and case of musical instruments.

POULTRY ASSOCIATION.

The regular monthly meeting of the Lancaster County Poultry Society was held Monday morning October 4, in their rooms in the City Hall.

The following members were present: S. N. Warfel, Strasburg; J.B. Liehty, city; F. R. Diffenderffer, city; H. H. Tshudy, Lititz; Chas. E. Long, city; J. B. Long, city; Wm. A. Shoenberger, city; Charles Lippold, city; J. E. Stauffer, Adamstown; Ferdinand Stauffer, city; C. A. Gast, city; W. L. Hershey, Chickies; Frank Griest, city; J. M. Johnson, city; Geo. A. Geyer, Spring Garden; O. Kendig, Lancaster; J. W. Buckhart, Salunga; John M. Hagans, Strasburg.

The meeting was called to order by the President, and the minutes of the previous meeting were read by the secretary.

Charles Lippold, on the part of the committee to revise the pigeon premium list, reported some additions, which were on motion adopted.

On motion, Dominique Leghorns and Ostrich feathered chickens were admitted into the premium list.

Chas. E. Long said that the committee have seen a person who has gold and silver pheasants, and is willing to show them.

On motion, it was resolved that the corresponding secretary be requested to correspond with the owner of the birds, and endeavor to secure three pairs for the coming exhibition.

The secretary stated he had received offers of coops from manufacturers, and explained the kinds offered and stated the prices. A resolution was passed authorizing the secretary to secure certain specified coops at a fixed price.

In reply to a question the president stated there would be no premiums for breeding pens; it would be competition throughout.

The Executive Committee reported that they have not rented a hall. Several places have been inspected and one will shortly be selected.

W. H. Amer was proposed and elected to membership.

The election coming on the day before the regular meeting in November, on motion the time for meeting was changed to the second Monday in November.

Adjourned

LINNÆAN SOCIETY.

The society met on Saturday afternoon, September 25, at 2 o'clock, in the ante-room of the museum, the President, J. S. Stahr, in the chair; five members and five visitors present.

After the preliminary business the following donations were made to the musium and library:

Museum.

1. Three specimens of embryo opossums by Mr. Stoner, of North Queen street, Lancaster. These are part of a litter of eleven taken from the matrix of a female *Didelphis virginiana* by a friend of Mr. Stoner's and by him donated to the society.

2. Adult and young specimens of *Thelia latipes*, or "Horned Tree-hoppers," by S. P. Eby, Esq., accompanied by the small branch on which they had been found, which they had punctured and much depleted.

3. Specimens of *Baridius hinotatus*, or "potato-weevel," from Mr. Lyte, of Lampeter township. These insects bore into the potato stalks and injure them very much.

4th. Larvæ of *Leucania unipuncta*, or "army-worm," from Mr. Geo. Shreiner, of Manheim township. Mr. Shreiner found them feeding on his tobacco plants in June last.

5th. Specimens of *Haltica pubescens* from Mr. T. Scott, of Marietta. These are the famous "flea-beetle" which so extensively depredates upon the tobacco plants.

6th. Specimens of *Calcareous spar* from Quarryville, Lancaster county, from Mr. Wm. Roehm.

7th. Two English sparrow nests found in widening one of the sheds on the east side of North Queen street.

8th. Three sprouted lemon seeds, showing that the seeds of the lemon occasionally throw out germs and roots within the sound fruit; and were discovered when opened.

9th. Dr. Davis donated a very peculiar buff-colored brick, manufactured at Milwaukee, Wisconsin.

10th. Several specimens of *Podalgus juvencus*, from Mr. Henry Nolty. Mr. Nolty says that from about the 20th to the 24th of the present month he found these insects very abundant in the northwest part of the city. Within a space of ten yards square he captured over three hundred specimens. When the sun was warm many of them were on the wing, but when it was cool, or in the evening or morning, they were found about the bases of the common rag weed (*Ambrosia*). As many as a dozen would be found clustering around a single plant, and on pulling up the plants a few would be found among the roots, and around the weeds holes were visible where they seemed to have come up from the ground; nor did he find any around any other plants.

He found no larvæ or pupæ ; the question, therefore is, what connection have they with these plants?

Phrynosoma. The living specimen of this animal was kept confined since the last meeting of the society in a globe aquarium with earth on the bottom, and a gauze cover, to prevent its escape. Living grasshoppers and flies were confined with it, but it did not appropriate any of them—indeed it appeared to be unconscious of their presence. During the whole month of its incarceration it scarcely ever rested for a moment, except it may have been at night, but from morning until the family retired from the room at night, it never relaxed its efforts to make its escape. So far as my experience goes, it is incapable of domestication or familiarization. When taken out of the tank and laid on the floor it did not seem anxious to escape. Before immersing it in alcohol, I attempted to drown it, but it would not drown, and when immersed it remained motionless for 20 minutes and then made frantic efforts to escape, and only succumbed after alternate struggles, continuing half an hour.

I think therefore that *Phrynosoma* is not only untamable, but also endowed with a vital tenacity which enables it to endure great privation and to exist under circumstances which would be fatal to many other animals, and yet when handled it is perfectly gentle and harmless.

Library.

Parts 9, 10, 11, 12, vol. 18, of the Patent Office *Gazette* ; parts 2 and 3, bureau of education ; also five circulars, office of interior; *Lancaster Farmer* for September, 1880; three catalogues and four circulars relating to valuable books.

Historical

Part of an old bell clamp, by Lewis Haldy. When the old German Reformed Church was torn down this fragment was found in the belfry. It bears date March 1722, which gives it an antiquity of 158 years. It probably belonged to some old bell used in the first church built by that congregation.

Three envelopes containing twenty-eight historical and biographical scraps, S. S. R.

Papers Read.

Notes upon the *Phrynosoma*, or "Horned Toad," and on germinated, or sprouted lemon seed, by S. S. R.

Prof. Halderman having been an honorod correspondent of the Linnæan Society, on motion S. S. Rathvon and Dr. Davis were appointed a committee to report an expression of the sense of the society on the great loss which science has sustained by his removal.

After the passage of sundry small bills and the usual intercourse amoog those present, the society adjourned to the 30th of October next.

AGRICULTURE.

Sorghum as a Forage Crop.

A year ago last winter and spring the attention of farmers was called to pearl millet, and it was highly recommended as a valuable forage plant. For the purpose of testing its merits we procured some seed, and planted on the same piece of ground with corn for fodder. When about three feet high we cut some of it, with the expectation of having another growth fully equal to the first, the remainder being left standing to further mature. The latter grew to about seven feet, a little of it having headed out when the frost came. The conclusion arrived at was that for southern climes it might be good, but for New England it would not at all compare with corn. The past winter and spring much has been said in favor of sorghum as a forage crop ; but, before recommending it to the readers of the *Cultivator*, we thought it best to test its merits, and so purchased some seed of the early amber kind. This we planted side by side with corn, and manured and cultivated it the same. The result is that the corn planted a week to a fortnight later is now nearly three times as large. We cut a stalk of the corn which had not tasseled out, that measured nine and a-half feet and weighed two and three-quarter pounds. A stalk of sorghum (we cut one of the largest, and it had thrown out the seed head) measured seven feet, but it was very slender and weighed only three-quarters of a pound ; and this would be a fair comparison of the amount of forage obtained from the two kinds.

Corn has more leaves, and they are much larger. The stalk of the sorghum is very sweet and no doubt contains a large amount of sugar, and on this account would be desirable as a forage crop, but there is not the least doubt that an acre of Western corn would produce a much larger amount of sugar than an acre of sorghum ; that is, although the sorghum would contain a much larger percentage of sugar, yet the greater amount of forage produced by the corn would yield more sugar as food for stock, and much more of all the other elements of food. It has also been claimed that sorghum was much better relished by stock than corn, but our cows eat the corn up cleaner than the sorghum, as the latter is harder and not so easily masticated as a stalk of corn, which is nearly three times as thick. For this reason sorghum not only yields a much smaller crop, but much more waste, than corn. The conclusion we have arrived at is that there has nothing yet been procured which will yield such an enormous amount of forage as corn, whether it is simply fed green, as summer forage, cured for winter use after the ordinary manner, or perfectly preserved as ensilage ; or, if all accounts are true, when imperfectly preserved ; but of this we cannot speak positively, having had no experience with a silo, and on the farm neither theories nor scientific deductions are worth a great deal till verified by actual experience.

Should the average farmer attempt by experiment to verify all the theories laid down by writers, he would soon be without a farm, and his family without bread. Neither is it best to accept all that may be claimed as successful experiments, as many may be successes in one place which would fail in another. Sorghum may prove a very profitable forage crop in a warmer climate than ours. With us the seed was very slow in germinating, and until it was nearly a foot high it grew very slowly compared with corn, but that it contains an abundance of sugar can be readily ascertained by tasting a little of the stalk.—*American Cultivator*.

Harvesting Broom-Corn.

The quality and therefore the value of the brush of broom-corn depends in great measure upon the time at which it is harvested. The most successful growers agree that the cutting should begin "as soon as the blossoms begin to fall," or, in other words, at that time when the seeds begin to form. At this time the brush is of the best color, heaviest, and most durable. The manner of harvesting differs somewhat with the variety and whether a particular color is sought or not. Some time before the brush is cut the broom-corn stalks are lopped, which consists in going through the rows and breaking down the tops a foot or so below the base of the brush. The object of this operation is, first, to keep the brush straight, and secondly to accelerate its ripening. The top of the plant still retains sufficient communication with the stalk to allow a thorough maturing of the brush.

The tabling consists in breaking down the stalks at about thirty inches from the ground. Each two rows are tabled together, the stalks of one row being crossed diagonally upon those of the other, thus making a sort of "table," with intermediate spaces affording room for the cutters. The cutting is done with a sharp knife, the stalk being severed six or eight inches below the base of the brush, and therefore some distance above the point where the stalk was lopped. The brush should be cured under cover, as exposure to the hot sun renders it brittle and the elasticity characteristic of a good broom is lost. A shed of any sort will do for small quantities ; for larger a drying house will be necessary. The next step is the removal of the seed, which is done by a long-toothed curry-comb, a hatchet, or if there are larger quantities a cylindrical scraper is to be employed, run by horse or other power. The brush is then put on racks to dry, where it remains until thoroughly cured and is ready for bailing. Much depends upon the character of the bailing ; in fact all the difference between a good profit and no profit. Compact, square bales, with even ends, and the brush so put in that it will come out straight, must be made, or only a low price will be obtained. The proper size of a bale is 3 feet 10 inches long, 2 feet wide, and 30 inches deep.

Sowing Wheat.

Early sowing, take one year with another, is best. When sown with a drill on rich land, a bushel of seed is enough for an acre, and a bushel and a half when covered with a cultivator. This gives room for tillering, which is helpful to a good crop, as it prolongs, somewhat, the blossoming time and makes a more complete impregnation of the grains. When harrowed in, cultivation is always made for seeds not well covered and not covered at all; and two bushels of seed are required when the land is lumpy and full of clods or stones, and much is lost on these accounts.

A stone, a lump of dirt, or a clod of any sort is a wasteful covering for seed of any kind. It is an excellent plan to soak the wheat in brine for a few hours before sowing, to destroy the germs of smut or the eggs of insects, which may be clinging to the kernels. Rolling in plaster will fit them for sowing, and at the same time furnish a stimulant for the young plant. The preparation of the ground is all important. The old time farmers used to think it wise to summer-fallow the wheat ground. A sod was turned over in early spring and replowed twice afterwards. This was done to get the land in a fine tilth or condition of mellowness, and to clear the land of weeds. They also had the idea that the frequent plowing made the land richer. It did, so far as it caused the decay of all the living vegetation and put the soil in a condition of more complete absorption. The same result may be obtained now after a crop has been gathered—and the use of the land, for one season, will not then be lost—by plowing immediately after harvest and then digging the ground, and, before the time of sowing, plow it again, and, if required, cultivating it with a two-horse cultivator at the time of sowing the grain. Another cultivating to cover the grain, or going over it with a drill, will give all the good results of the old summer-fallowing, besides an extra crop. Thorough subduing and pulverization are requisite, and these are obtained by the newer method with the improved machinery farmers now possess.—*Rural New Yorker*.

Small Compost Heaps.

All farmers know the value of "compost" and how to prepare it. Many farmers manufacture hundreds of loads of the best manure in this way. They gather together on the premises forest leaves, cornstalks, including the roots, weeds, vines, offal from fence-corners, muck from ponds and ditches, occasional sprinklings of lime through the mass, layers of barnyard manure, and thus build up oblong squares and let it remain over winter. When April arrives the mass has gone through fermentation and comminution, and presents a mound of fertilizing matter better than a small gold mine would be to the proprietor of the farm. But we want to see these compost heaps in the garden, and there is no reason why they should not be there as well as upon the farm. There is rubbish enough in the garden, with the assistance of leaves, some mold from the woods, if attainable ; if not, from portions of the premises it can be spared ; scrapings from the turnpike ; manure from the stable, and every attainable substance that will decay through the winter. A little slacked lime will be a good assistance. A half dozen to a dozen loads of excellent manure will be manufactured by the time it is wanted in the spring, without incurring scarcely any expense.

American Tobacco.

Pennsylvania has become one of the leading American States in the production of tobacco. And as the crop is a much more profitable one than many others to which our farmers turn their attention in multitudes from the mere force of habit and association, we cannot say that we regret this development. Before the civil war tobacco was one of the leading staples of American agrienlture on account of the extent of the Southern crop. But war left the tobacco regions of the South so devastated and ruined that recuperation was extremely slow and diffieult, and in some regions almost impossible. Nevertheless the Southern crop has been gradually recovering, and within the last ten years it is understood to have made marked progress in some of the Gulf States. Properly speaking, this crop ought to be one in which the American production should permanently hold the leading place in the world's commerce. The example set by Pennsylvania in this respect is calculated to carry weight with it in all parts of the South. For if good tobacco can be raised here much better ought to be raised in the planting States of the South, and especially those of the cotton belt extending from the South Carolina coast to Western Texas.

Amount of Seed.

There is no precise amount of wheat to be sown per acre—no rigid, inflexible rule to be followed any more than in the application of manure or an artificial fertilizer. Much depends upon the soil ; if it be rich, deep and clean of weeds, the amount of seed need not be great. Mr. Mechi, of England, advocates thin sowing, he only using three pecks per acre ; but his land is in high culture, thoroughly drained and clean of all weeds, and every grain strikes its roots deep into the soil, finds an abundance of food, tillers freely, and soon covers the ground with a vigorous growth. There is much difference in the size of the grains of different varieties of wheat, therefore, the smaller the grain the greater the number of plants that may grow from a given amount. The end to be gained is to have the ground well covered with deep rooted, well-fed, and, therefore, vigorous plants, and any more or less seed than will do this is a poor seeding. It is evident that we can not give any rule for everybody to follow on any kind of soil under any circumstances.

Liquid Manure.

The farmer who lets all the liquids of his barnyard run to waste is a spendthrift, however "close-fisted" he may be with money. A practical farmer said recently : "On my farm on the Hudson river, I have built cisterns under the barn and stable, in which this liquid is collected. These cisterns are all connected, and one being built on a lower grade, they all empty into this one. When it rains I put put a force-pump into the cistern and fill two water carts, such as are used in watering our streets, and scatter this liquid over our meadows ; in forty-eight hours afterwards a change is perceived in the color of the grass." Another farmer who has a similar arrangement in his barnyard, says he saves 100 loads every year, and thinks the liquid worth as much as so many loads of solid manure.

Hen Manure.

In speaking of the management of hen manure the *American Agriculturist* remarks that dry muck, loam, or other earth, will retard or prevent the formation and hold the ammonia that is formed. Water enough to keep it wet will do the same in cool weather. Plaster with enough moisture will also absorb the ammonia, but dry plaster will not. The custom of mixing lime and ashes with hen dung is wrong. They drive out the ammonia instead of holding it. Hen manure is useful for potatoes, garden vegetables, or indeed almost all crops, including strawberries and other small fruits.

Oats with Wheat.

The sowing of a bushel of oats per acre, with the winter wheat, has often proved of material benefit to the wheat crop. The oats grow more vigorously than the wheat and aid in catching and holding the snow. The oats act as protection or mulch to the wheat. The little food the young oat plants draw from the soil is returned during the spring when, being killed by the winter, they rapidly decay.

HORTICULTURE.

Raising New Peaches.

The past few years have been marked with the production of a large number of very early peaches. We now have supplies some weeks sooner than ten years ago, which is certainly a very important achievement, but such a throng of new sorts has bewildered cultivators. Many of them are so nearly alike that the entire number might be reduced to one-tenth and still retain all that are desirable. But to prevent throwing out some which may possess peculiar value, enterprising cultivators will do well to plant the whole on trial grounds for comparison.

We do not fear the inconvenience of a long list for experiment. This is the only way in which we can get the best sorts We would increase the number of varieties provided the work can be done intelligently. We cannot recommend raising new varieties by the hundred by planting stones of Hale's Early, the product of which shall scarcely vary. What we want is skillful crossing. Plant two unlike trees, each possessing valuable qualities, within a few inches or a foot or two of each other, so that the branches when they bear shall be well interlaced. The stones from these mixed trees would be likely to give wide variations in character. Take for instance the Yellow Rareripe and Hale's Early, or any other similar unlike sorts. It is not probable that such crossing would furnish many repetitions. A large number of combinations might thus be made. The work need not require many years. Two-year trees, well shortened back when set out, will bear in three or four years, or sooner. The stones from them would show the new sorts in as many more years. Who among our readers, who have a few acres of spare land for the production of new sorts, will try eight or ten thousand seedling crosses by way of experiment? It would be worth all this labor to gain what has been achieved in the last ten years.—*Country Gentleman.*

Apple Culture.

If we look back only a few years, when to talk with farmers on their neglect in planting more apple orchards and raise more of this the most valuable of all fruit, it was to be met with the same answer that it was entirely useless to attempt it, as the land had run out, so far as the culture of this fruit was concerned, and we must depend upon other sections—the West—for our supply of apples hereafter. By referring to our columns from twenty to thirty years ago, it will be seen that we tried our best to combat this idea, and to show that was not the land, but the neglect to do justice to the orchard. The land was not kept in good order, being seldom manured, the trees left unpruned and allowed to die from old age, and not renewed by the planting of other trees, first selecting such varieties—but only a few—that are known to be the best suited to the soil and the demands of the market.

In time, by this prodding, efforts were made to see what could be done; and we may add that many of these efforts were by "fancy farmers" (if we may so call them) from the cities, who did not stop at spending money in attempts to do what in earlier periods had been so successfully done in apple raising. The result, in nearly every case, has more than realized all their anticipations, and we can now see here at our very doors the products of the orchard in quantity and quality beyond anything known in the past. Hence, apple culture is fast becoming an important branch of farming, and as profitable, all things considered, as any followed to the same extent upon the farm.

Keeping Celery.

From time to time we have printed our mode and the modes of others for keeping and blanching celery through the winter. We have covered it carefully in the rows in which it grew, and found it to answer very well, when applied to that which is intended to be first used. We have found it to answer better to take it up and set it in rows close together, leaving only space enough to prevent the plants from touching, and packing the earth firmly around them, leaving only an inch or two of the tops sticking out, then covering either with boards, placed so that the water cannot penetrate, or with cornstalks thickly bent over and fastened. Drains should be dug around the celery to carry off the water. We have kept it in this way until May and well-blanched.

It is well known that stalks of celery stood in spring water under a shed, where it is not likely to be frozen, will become perfectly white and tender. But it is only a few persons who can have the spring water at hand for this use.

We have known celery to be perfectly blanched and preserved by packing the roots in wet earth and keeping them in the cellar. Large boxes were obtained and a few inches thick of earth placed on the bottom and made as wet as possible. The plants were then packed upright, side by side, as close as they could stand, until the boxes were full. The upper leaves were, of course, exposed, and attempting to grow a little by the encouragement given to the roots by the wet earth, caused growth enough to blanch the whole. There is an advantage in this over keeping it in the cellar as many do, where it retains its greenness all winter, and is scarcely fit to eat. But we prefer the out-door plan, when it is well done.—*Germantown Telegraph.*

How to Harvest Apples.

Hand-picking should always be the rule with winter apples. Varieties that ripen irregularly ought to be gathered accordingly. Generally speaking, the later sorts should be left on the tree until late, so as to give them opportunity to fully color up. Before picking is begun, it is well to have a suitable place prepared in the orchard or near at hand, for the temporary storing of the apples, unless there be two sets of hands for sorting and packing as fast as the fruit is gathered. Apples keep longest if free from atmospheric moisture when taken from the tree. Small baskets, holding half a bushel each and suspended from a hook on the ladder, are more convenient and less liable to bruise the fruit than bags. Once gathered, the apples should be securely protected from the sun and storms until they are sorted. Many farmers who have fruit-houses delay sorting over and picking until the approach of cold weather. The best method, however, is to sort the fruit immediately, and lay all that is sound carefully into tight barrels, shaking the barrels gently two or three times during the process of filling, to insure the apples packing closely; they may then be tightly headed, with the head heavily pressed down, and secured to avoid all movement of the apples inside the barrel. The barrels should next be placed in some dry, cool spot. Apples will keep much better, and their decay is retarded, if they are not stored in cellars until freezing weather. In other words, they require to be kept as cold as may be and not freeze. When the cellar is used for storing fruit, it should be well ventilated.

The Peach.

The peach originated in Persia and northern India, and is of the same genus as the almond. The nectarine differs from the peach only in being smooth while the peach is downy. It is a mere variety, probably produced and assuredly preserved by cultivation. The freestone peach of the French is their *peche*, while the clingstone is their *pavie*. A remarkable variety, of Chinese origin, has the fruit compressed and flattened, with almost evergreen leaves. The peach is cultivated widely in Southern Europe, in many parts of the East, in South America and Australia, though it has never, it is believed, attained the perfection of the fruit in the United States. New Jersey, Pennsylvania, Delaware, Maryland and Ohio raise superb peaches, and have often orchards containing from 20,000 to 25,000 trees. The quantity of dried peaches is reported to be steadily increasing, while peach brandy is diminishing. Peach water, obtained by bruising the leaves of the tree, mixing the pulp with water, and distilling, is not only employed for flavoring, but in medicine as a sedative and vermifuge. The stone of the fruit is very like the bitter almond in its properties, and the blossoms exhale an odor of bitter almonds. Both the stone and blossoms are used in the manufacture of a liquor called persico. In the Old and New World there are, it is said, more than one hundred varieties of the delicious fruit.—*New York Times.*

Cultivation of Tea.

The head of the agricultural department at Washington appears to be quite sanguine of success in the permanent cultivation of tea as a domestic crop in our Southern States, where the department has distributed seeds of tea plants quite extensively, with the most gratifying results. As a matter of course if the Southern planters conclude to turn their attention to this crop with anything like the determined energy displayed in raising cotton, tobacco, corn, rice, sugar and other crops, they may be expected to achieve a measure of success. We should have supposed, however, that this particular crop would succeed better in California than in our Gulf States, as on the Pacific coast the climate is better adapted to it, the soil more prolific than in India and China, and the situation of the country particularly favorable for the introduction of Chinese labor skilled in the cultivation of the tea plant and the preparation of it for use by the commercial world. As, however, the persecutions of the Chinese in California have rendered the experiment there apparently hopeless for the present perhaps, the commissioner of agriculture has acted wisely in attempting to utilize the peculiar plantation system of the South for the successful naturalization of tea in American agriculture.

The White Willow as a Hedge.

Some people are recommending this variety of the willow for hedging purposes, and say it will, in its fourth or fifth year, "turn any stock ever kept upon a farm." There is some truth in this. We have some little acquaintance with the article. We think in about its sixth year all told, or fourth or fifth from the nursery, it will turn cattle if planted sufficiently close together—say from fifteen to twenty inches. It is a rapid grower, and in early spring its early blooming is very beautiful. But woe to those who plant it within fifteen feet of a well or drain! The roots wander in every direction, and will *scent water*, we believe, at twenty feet or more. They exhaust the soil, also, for many feet on either side of the line quite as completely as the Osage orange, without being nearly so valuable as the latter for hedging.

Some years ago we planted two specimens as ornamental shrubs, about eight feet from a stone spring conductor, eight inches square, four feet under ground. In about four or five years after planting the spring stopped running. Suspecting the cause the conductor was unearthed, and it was found for a distance of fifteen feet completely choked with the roots! They were so crowded that it was with some difficulty that they could be removed. That was the last of the white willow seen at *our* premises.—*Germantown Telegraph.*

Enriching Orchards.

Any farmer who has been accustomed to raising apples and has been uniformly successful, will doubtless say that if he expects to get good crops he treats the orchard as he does for any other crop—he manures it, and he finds that a manure that will do for most other crops will do for the crop of apples. It is the neglect to manure orchards at all that causes them to bear so poorly and the trees to look in bad condition. There is nothing better than wood ashes for orchards, if we had the ashes; but nearly everybody burns coal except in certain out-of-the-way sections, and we must therefore resort to something else. Next to wood ashes there is no other fertilizer better than barnyard manure. A liberal application of this, if only once in three years, with careful pruning and scraping of the trees, and ferreting out the borers and all other insects which lay concealed under the bark, will soon make a change in the productiveness of the orchard. October and November are the best months to apply the manure and to give the trees a good scraping off of all old bark. If the trunks were washed with whale-oil soap, say one pound to an ordinary sized bucket of water, there would not be many insects left alive after the operation.—*Germantown Telegraph.*

Planting.

While we are in favor of fall planting wherever the climate is favorable it cannot be recommended indiscriminately. In *all* localities where there is a long and mild autumn it is preferable to spring planting. At this season the soil is warm and mellow, a condition favorable to the healing of bruised and cut roots and the growth of new ones. There is more time at this season that can be given to the work which need not be hurried, and this with the better condition of the soil insures much more thorough work. The trees become established and get an earlier start in the spring, and are the better able to withstand a drouth that may come in midsummer. The earlier trees are planted after completing the year's growth the better. A mound of earth around the base of the newly set tree serves to keep water from settling around the roots, acts as a support and protects the base from the attacks of mice. If trees are to be set in the spring it is best to prepare the ground now, secure the trees, and heal them in a dry and safe place, to be in readiness in spring.

Large Roots.

We find the following sensible suggestion in the *American Agriculturist* for 1879: "Much injury has doubtless been done by the absurd offer of premiums at agricultural fairs for the largest sized pumpkins, potatoes, cabbages and roots. Size is no test of ex-

cellence; on the contrary, fair sized, well-grown, healthy vegetables and fruits are of better quality than the overgrown, monstrous ones which have been fed and forced with liquid manure. For feeding animals moderately sized roots are much more valuable than larger ones, and a mangel or beet of six or eight pounds is more nutritious in proportion to its size than one of twenty pounds. In cultivating roots the aim should be to encourage a thick growth of small roots rather than a sparse growth of large ones. The crop in the aggregate may not be so heavy, but it will be worth more for feeding. The beet sugar manufacturers instruct the farmers who grow beets for them to produce roots as near two pounds in weight as possible, as these contain one-third or one-half more sugar than the large ones.

The Original Seckel Pear Tree.

The *Gardener's Monthly* for September has a full history of the original Seckel pear tree, which is still standing in the "Neck," illustrated with a cut of tree. It is only about half standing; in fact not being much more than a shell. It still bears a few pears. It is supposed to be about one hundred and fifty years old. It is conjectured that the seed from which the tree sprung was thrown overboard in a core from a vessel as it passed down the Delaware, which, being washed to the shore, took root and grew, there being subsequently dykes thrown up to protect the bank against the encroachment of the tides. The farm on which the tree stands is now owned by Mr. Bastian. We have now upon our premises a Seckel pear tree grafted from the original tree. It grew upon the grounds of the late Simon Gratz, Esq., on Broad street, Philadelphia, whence we had it removed when it was over thirty years old, some twenty years ago, and it now gives us a yearly crop of fruit of the best quality.

Iron for Fruit Trees.

The scales which fly off from iron being worked at forges, iron trimmings, filings or other ferruginous material, if worked into the soil about fruit trees, or the more minute particles spread thinly on the lawn, mixed with the earth of flower beds or in pots, are more valuable. They are especially valuable to the peach and pear, and in fact supply necessary ingredients to the soil. For colored flowers they heighten the bloom and increase the brilliancy of white or nearly white flowers of all the rose family.

DOMESTIC ECONOMY.

The New Way of Preserving.

The "Ozone preserved" fruits and meats require, it is said, a very simple process, which can be adapted to family use. If what is claimed for Mrs. Mitchell's exhibit is sustained it should make a great revolution in our markets at the times of winter thaws and summer waste. Meats, eggs and fruit are shown that have been kept from the opening of the exhibition; and the public's eyes and other senses are invited to examine these. A problem for chemists is perhaps in store, as it may still have to be tested whether the preservation of food and its permeation by an anti-septic process would in any way interfere with its digestibility. Ozone in the lungs is a good thing in proper quantity and mixture. Query.—Would ozone in the stomach afford similar results? The process is said to be readily carried on at home—by securing an air-tight apartment, and, as women have pickled with vinegar and preserved with sugar for hundreds of years, they may like to turn their hands to this other sort of preserving and test the process for themselves. It would certainly be a great advantage, after a dinner had been prepared for company who didn't come, to be able to set it all by in ozone until they arrive, next week or next month, and, if the imperishability of provisions is secured, the only risks the fruiterers and other dealers in perishable commodities would run, would be of an overstock in the markets. "Why do summer roses fade?" will, perhaps, not be asked any more; but, as not all the preparations keep their color, perhaps there will be some few little matters left in the world to be poetical about. It would lift housekeeping into poetry, for one thing, if nothing ever "spoiled" or had to be wasted, or thrown away. Perhaps in an ozone atmosphere even cooks would keep their tempers.

Meat-Bread.

M. Scheurer-Ketner, says the *English Mechanic*, has discovered the remarkable fact that the fermentation of bread causes the complete digestion of meat. He found that the beefsteak cut into small pieces and mixed with flour and yeast disappear entirely during the process of bread-making, its nutritive principles being incorporated with the bread. The meat would also appear capable of preservation for an indefinite period in its new state, for loaves of meat-bread made in 1873 were submitted to the French Academy of Science, when not a trace of worms or moldiness was observable. At the beginning of his experiments M. Scheurer-Kestner used raw meat, three parts of which, finely mixed, he mixed with five parts of flour and the same quantity of yeast. Sufficient water was added to make the dough, which in due time began to ferment. After two or three hours the meat disappeared and the bread was baked in the ordinary manner. Thus prepared the meat-bread had a disagreeable, sour taste, which was avoided by cooking the meat for an hour with sufficient water to moisten the flour afterwards. The meat must be carefully deprived of fat, and only have sufficient salt to bring out the flavor, as salt, by absorbing the moisture from the air, would tend to spoil the bread. A part of the beef may be replaced with advantage by salt lard, which is found to improve the flavor. The proportion of meat to flour should not exceed one-half, so as to insure complete digestion. Bread made with a suitable proportion of veal is said to furnish excellent soup for the sick and wounded.

To Keep Apples in Winter.

The following rough but good way to keep apples in winter, where there is plenty of material, is given in the *Practical Farmer:* Buckwheat chaff is first spread on the barn-floor, and on this chaff the apples are placed, when they are covered with chaff and straw two or three feet in thickness. Here they remain till spring. It is not stated that the interstices are filled with buckwheat chaff, but this care should be important. The covering and bedding in chaff has several important advantages—it excludes cold, prevents air currents, maintains a uniform temperature, absorbs the moisture of decay and prevents the decay produced by moisture.

Simple Method of Sharpening Razors.

It has long been known that the simplest method of sharpening a razor is to put it for half an hour in water to which one-twentieth of its weight of muriatic or sulphuric acid has been added, then lightly wipe it off, and, after a few hours, set it on a hone. The acid here supplies the place of a whetstone by corroding the whole surface uniformly, so that nothing further than a smooth polish is necessary. The process never injures good blades, while badly hardened ones are frequently improved by it, although the cause of this improvement remains unexplained.

HOUSEHOLD RECIPES.

WOODCOCK.—Dress the birds, put the head under the wing or stick the bill in the breast, wrap them in slices of fat bacon and roast quickly, basting them with fresh butter. Garnish with watereress, and serve with currant jelly; or, if preferred, remove the gizzard only of the bird, lard with butter, and, after baking a few moments, baste with butter and hot water, and place an oval piece of toast under the bird to catch the *trail*. When woodcock are served on toast it should be buttered and placed under them ten minutes before the roasting is finished.

QUINCE MARMALADE.—Choose very ripe quinces, wash, pare and core them; to each pound of fruit allow one pound of loaf sugar. Boil the parings and cores together with enough water to cover them, till quite soft, strain the liquid into the preserving kettle with the fruit and sugar. Boil the whole over a slow fire, stirring frequently till it becomes an even jam. Put in glass-topped jars or in white China jars with paper on top. The cores and parings alone boiled into a jelly, with ¾ pound sugar to each pint of the strained juice, makes a delicate jelly for the sick.

BEEF STEW.—Select from the cheapest cut of beef about three pounds of the lean, put into an iron pot, cover it with water, and one quart of peeled and sliced tomatoes, 1½ pints sliced okra, three onions cut fine, and half a dozen ears of corn cut from the cob. Let the whole stew gently for three hours, or until the vegetables make a jelly with the meat. Season with salt and pepper before removing from the first. If desired add two ounces of butter.

FRIGADEL OR VEAL LOAF.—Three-and half pounds of veal, five small crackers pounded, one teaspoonful of pepper, half a nutmeg and three eggs. Chop the veal very fine, add one-fourth of the cracker, then the salt, pepper, nutmeg and eggs; if the veal is lean add a bit of butter. Mix all together thoroughly with the hand, pour it into an oval loaf, spot it with bits of butter and strew over it the rest of the cracker, lay it in the pan with a little water, and let it bake rather slowly for two hours, baste it occasionally, and from time to time add a little water that there may be sufficient gravy. This is delicious when cold.

EGG PLANT BAKED.—Cut them in quarter-inch slices, lengthwise. Put them in layers on a well-buttered dish (previously rubbed with garlic). Put between each layer a sprinkling of fine bread crumbs, chopped parsely, sweet herbs, pepper and salt to taste. Pour over them some liquefied butter; add a sprinkling of grated Parmesan cheese and a few dried bread crumbs. Bake in the oven and brown with a salamander or a hot stove-plate.

A "HANDY" APPLICATION FOR PAIN.—For neuralgia in the face or other acute suffering elsewhere, the following remedy has been tried with good effect: Cut a thick slice of bread all across the loaf—fresh bread is best. Soak one side for a minute in boiling water, and rapidly sprinkle cayenne pepper over the hot side. Apply while still smoking hot to the painful surface. The bread retains the heat long enough for the cayenne pepper to begin to act, and cayenne does not affect delicate skins as mustard does. It acts as a rubefacient, but not a blister.

Another excellent remedy for congestion from cold is to apply a poultice of flaxseed meal and cayenne pepper. By keeping a bit of oil silk on the outside of the poultice cloth it will retain both heat and moisure for a long time.

FOR PICKLED BUTTER the *Queen* gives the following receipt: Put salt into three gallons of water, sufficient to float an egg; add a quarter of a pound of loaf sugar and a tablespoonful of saltpetre. Boil these ingredients for fifteen minutes, skimming it very clean; when it is cold, strain carefully. Make the butter into rolls of not less than three pounds each, or up to eight pounds if desired; wrap the rolls separately in muslin cloths, tying the ends with a piece of string; pack them in a large crock, and pour the pickle over them; place a board with a weight on it took them submerged. This pickle will keep really good butter quite sweet for six months, being only a little salt on the outside of the roll. It is a safer method than packing in a jar or tub for winter use. It is advisable to put the butter in the pickle the same day it is churned, and that little or no salt be worked into the butter. The crock must also be kept in a cool, dry place.

CAROTTE AU POT.—Cut off the bottom crust of a loaf, leaving the same thickness of crumb as there is crust. Cut it out in rounds the size of a dime. Soak these rounds in some good clear stock, lay them in a well-buttered tin and put it into the oven to remain till quite dried up. Then lay them in the soup tureen with pieces of carrots, turnips and onions that have been used to make the stock, cut out in rounds, pour some clear stock boiling hot over and in a few minutes serve.

BEEFSTEAK OMELETTE.—Three pounds of raw steak and one slice salt pork chopped fine; then soda crackers rolled, one egg, half a cup of milk, small piece of butter, two teaspoonfuls salt, one teaspoonful sage, half teaspoonful of pepper; mix with the hands; pack in a tin and bake one hour and a half. When cold slice thin.

CINNAMON COOKIES.—One egg, one cupful of sugar, three-quarters of a cupful of sour cream, three-quarters of a teaspoonful of saleratus and a little salt; stir very stiff and drop in small bits on the moulding board, on which is spread a few spoonfuls of ground cinnamon. Roll the cakes separately in this powder; lay on a well-buttered tin and bake.

FRIED MUSH.—Boil the cornmeal pudding or mush while doing other cooking. The longer it is boiled the sweeter it will be, and when finished should be quite thick. Season with salt, and turn into a dish to mould. Slice thin, dip in flour and fry in butter or nice drippings for breakfast. The beauty of this dish is to have the slices a crisp brown. Graham mush made and fried in the same way is also very nice.

CHOUFLEUR AU GRATIN.—Dispose on a buttered dish a boiled cauliflower, cut in two pieces. Melt a piece of butter the size of an egg, add a tablespoonful of flour, stir on the fire a couple of minutes, add a gill of milk and two ounces or more of grated Parmesan cheese, pepper and salt to taste; stir until the sauce boils, pour it over the cauliflower; sprinkle a few baked bread crumbs over and bake in a quick oven until well browned.

THE IDEAL SANDWICH.—Take delicate morsels of cold grouse, and either grate or pound them finely. Season to taste, adding a drop or two of lemon. Spread some paper-thin slices of fresh bread with butter; over this spread thickly the grouse. A quantity of these sandwiches with a bottle of wine for those who approve it, or a bottle *cafe au lait* for those who don't, and some fruit for dessert, make up an ideal traveling luncheon.

CELERY SALAD.—Take the inner and tenderest heads of three stalks of celery, cut them into strips an inch long and about the thickness of young French beans. Rub the salad bowl lightly with shalot. Mix the yolks of two hard-boiled eggs with three tablespoonfuls of salad oil, one of tarragon vinegar and a little flour of mustard, pepper and salt to taste; and the celery to this sauce, turn it well over, garnish with the hard-boiled whites of eggs.

CAROTTES A LA FLAMANDE.—When par-boiled and drained, put the carrots into a saucepan with a piece of butter, a pinch of sugar, and as much water as may be necessary for sauce; add some finely minced parsley and white pepper and salt to the taste. Let the carrots simmer till done (about fifteen minutes), shaking them occasionally. Beat up

together the yolks of two eggs and half a gill of cream; stir this into the carrots off the fire and serve.

Apples in Jelly.—Pare and core small-sized apples without cutting open, then put them with some lemons in water to cover, let boil slowly until tender and take out carefully without breaking. Make a syrup of half a pound of white sugar to one pound apples, cut lemons in slices, and put them and the apples into syrup; boil very slowly until the apples are clear, take them out in a deep glass dish; put to the syrup one ounce of isinglass dissolved, let it boil up, lay a slice of lemon on each apple and strain the syrup over them.

Painted Ladies.—Remove the eyes and stalks from some nice round-looking apples that will cook well, and peel them very evenly to preserve their shape. Place them in a shallow stewpan large enough to hold them in one layer. Dissolve loaf sugar in sufficient water to completely cover the apples, allowing four ounces of sugar to each pint of water; add a few cloves and a little lemon peel and stick cinnamon. Cover the stewpan, and simmer the apples very gently, or they will break before being cooked thoroughly. When done, and they are cool enough, lift them carefully to a glass dish, and with a small brush tint them delicately on side with a little liquid cochineal or melted red currant jelly, strain the syrup, return it to the stewpan, and boil it rapidly until reduced to one third of a pint. When cold stir to it a wineglass of sherry and the juice of half a lemon, and pour it round, but not over the apples. The wine may be omitted.

French Mode of Cooking Beans.—Take young beans, cut off the heads and tails and a thin strip on each side of the beans to remove the strings. Then divide each bean into four or six pieces, cutting them in a slanting direction, and as they are cut drop into cold water, with a small quantity of salt dissolved in it. When tender put them in a stewpan, and shake over the fire to dry away the moisture from the beans. When quite dry and hot add three ounces of fresh butter, pepper and salt to taste, and the juice of lemon. Keep moving the stewpan without using a spoon, and when the butter is melted and all thoroughly hot, serve. If the butter should not mix well add a teaspoonful of gravy, and serve very quickly.

Boiling Vegetables.—Cabbage should boil an hour; beets, an hour and a half; parsnips, an hour, or an hour and a quarter, according to size; squashes, the larger end should boil half an hour, the neck pieces fifteen or twenty minutes longer; new potatoes, fifteen or twenty minutes; old ones, from half an hour to an hour, according to size—never let them stop boiling (if you wish them mealy) till they are done—then turn off the water and let them dry.

Pot-Pie Crust.—To each cup of good rich buttermilk add one-half teaspoonful of soda, a little salt, and mix as thin as you can conveniently roll out. Cut like buiscuit. Put it into the pot while the liquid is boiling, cover it tightly, and cook slowly for about an hour.

Minced Mutton with Poached Eggs.—Mince the mutton small, taking out all skin and sinew. Put in a stewpan a small piece of butter, with one or two onions, some parsley and a sprig of tarragon, all chopped fine, and let them fry well in the butter; then add sufficient stock for the quantity of meat; pepper and salt to taste; a little browning if needed for the color, and a tablespoonful or more of flour, mixed in a little stock of water. Stir constantly, and when the sauce is smooth and well boiled add the minced mutton and warm it through, but do not let it boil, or it will be hard. Pour it upon a dish, and serve it with some nicely poached eggs on top.

Scalloped Oysters.—Toast several pieces bread brown, and butter them on both sides; take a baking dish and put the toast round the sides instead of a crust; pour your oysters into a dish and season with salt, pepper, mace and butter. Crumb bread on the top and bake in a quick oven for fifteen minutes. Second Recipe.—Grease well a baking dish with butter; throw fine crumbs about it until they adhere on all sides; have a bowl of seasoned crumbs ready, and lay oysters into the dish so as to cover them and a small piece of butter; then another layer of oysters covered in the same way with crumbs until the dish is full; cover this last layer rather more thickly with crumbs, and lay several pieces of butter here and there over it; bake it until it is nicely browned, fifteen or twenty minutes, not longer, or the oysters will get hard. In putting in the oysters lift them with a spoon from the liquor and do not drain them.

Live Stock.

More Wool Wanted.

General Le Due made a speech at the opening of the sheep show in Philadelphia which contains some points our Granger friends should read and ponder over. He stated that during the fiscal year of 1879 no fewer than 128,000,000 pounds of wool were imported from foreign countries for the use of American manufacturers. Commissioner Le Due argued rightly that all this wool could be grown by our home agriculturists and the money to pay for it retained among our own people. There can be no question about the correctness of his position. There is no finer country in the world for sheep industry than much of our Western territory. There are many millions of acres not adapted to grain growing, but upon which the most nutritious grasses in the world grow in the utmost luxuriance. The rainfall is quite small, making these dry table-lands the very paradise of the sheep-grower. New Mexico has for a century been the home of a large sheep industry. During the most of that time, however, no attention whatever has been paid to the production of pure breeds or fine wools. Only the most diminutive animals have been kept, while the quality of the wool product has been entirely neglected.

During the past twenty years, however, a great change has taken place in this particular. Pure-blooded Merino bucks have been taken there in large numbers, and already the entire aspect of the sheep industry has changed. Before that period the aver age weight of New Mexican fleeces was about one and a-half pounds. We have no correct data at hand, but have no doubt that at the present time nearly double that weight has been reached, while the good work is going on all the while. In time the millions of sheep in that territory will have their due influence on the question raised by Commissioner LeDue, and go far to solve it. All these industrial problems, we have no doubt, will in due time come around as we wish them, but they are a matter of slow growth generally, and cannot always be pushed forward as rapidly as we wish.

Gradiag Sheep.

The *Drover's* (N. H.) *Journal* speaks editorially as follows: Those who can afford to raise sheep can better afford to do it properly than to continue on in the old way of using scrub rams upon the same kind of ewes. Such breeding is almost as bad as no breeding at all, for instead of yearly improving and approaching purity of blood the flock annually becomes weaker and of less value to the owner. Many there are who imagine that pure bred sheep of any strain are very expensive and only fit for fancy farming and men who have plenty of surplus capital to invest in fine stock. Then again there are some who are just foolish enough to think it requires more attention, more care generally and more money to keep up a flock of pure bred animals after it is once started, than to raise the common scrub sheep. This is most certainly a wonderful mistake. Pure bred or high grade animals of any kind will yield greater profits and thrive better on the same or a less amount of food, and with no more extra care than a lot of scrub stock receives. Or, grant that grade purely bred sheep are more expensive than the others, is not the difference in the yield of wool and the quality of the mutton great enough in favor of the grades to more than doubly pay the difference in the cost of production? A man of very ordinary means can, in a few years, have a flock of sheep equal to the best, if he uses ordinary good judgment in his selections of ewes for breeding, and constantly keeps at the head of his fold a thoroughbred male. Secure a few good common ewes at first and buy a purely bred ram every year or two to couple with the best ewes in the flock, and fatten for market the inferior ones. Thus, by using none but thoroughbred rams, and selecting each year the best ewes in the flock for reproduction sheep-growing may be more profitable.

Hectic Fever in the Cow.

When the placenta or after-birth has been retained so long that decomposition has taken place, inflammation of the womb, hectic fever, or septicæmia, are among the often fatal results. The decomposing contents of the womb should be removed without delay by the hand, which, together with the arm, should be previously well smeared with oil or lard, to which is added a small quantity of carbolic acid. As the decomposing after-birth is very infecting, there should be no sores or abrasions on the hand or arm. When the solid contents of the womb have been removed, warm water should be injected for the purpose of washing out remaining putrid matter, and daily injections of water, with each quart of which is mixed a teaspoonful of carbolic acid, should be made so long as necessary. Internally give morning, noon and evening, an ounce each of tincture of gentian, tincture of ginger, and hyposulphite of soda, in a pint of gruel. Give easily digested and nourishing food, such as steamed oats and barley or corn. Among the causes of retention of the after-birth may be mentioned slow and difficult birth, too early closing of the neck of the womb, undue adhesion of the points of contact (cotyledons) of the womb and the after-birth, poor or debilitated condition of the cow, etc. It has also been noticed that some cows are habitually slow in passing the after-birth, or have a tendency to become so, especially when it was retained long after the birth of the first calf.—*Prairie Farmer.*

Cattle at the Fair.

Any one attending the late State Fair and noticing the number of contributors in the cattle department, must have been struck with the very few farmers and owners of fine stock who felt enough interest in the exhibition to counterbalance the trouble and expense of aiding in the display of cattle that always attracts so much attention. It is one those parts in a farmer's exhibition that more than any other involves an amount of interest that even the very children are brought up to estimate and regard as something particularly worthy their attention. No doubt the extremely warm weather for some ten days previous to and immediately up to the opening of the State Fair kept many away on account of the risk—as two valuable animals died as it was—but this was not altogether enough as the actual cause of the deficiency. One prime cause was the labor and expense of driving the cattle a long distance, or of transporting them by rail; another was dissatisfaction with the awards of previous exhibitions. Another in disturbing the milk or butter arrangement with customers. For, it is clear that if the contributions were to be confined to only Montgomery, Bucks, Lehigh, Lancaster, Chester and Delaware counties, the display of cattle ought to have been five times what it was. Without an extensive display of cattle at a "cattle show," it seems to detract from everything else.

Winter Care of Stock.

The time of the year has now come for every farmer to take into full consideration the advantages of providing good suitable shelter for all the live stock he may have about him to be cared for during the coming winter. It is a difficult matter to calculate just the amount of loss that may be suffered in keeping a given number of either cattle, hogs or sheep through a winter season in our climate without proper shelter, as much will depend on the kind of weather we may have during the winter, but there is no doubt but that there is more or less in all cases of the kind. Alternate freezing and thawing, with a mixture of rain, sleet and snow, makes the worst kind of weather for live stock to suffer exposure in, and there is hardly any kind of stock that can be expected to hold its own in weight and condition with all the feed that may be given, where it is fully exposed to such weather as we have described. It is not a very costly matter to provide shelter for all the stock that is usually kept on a moderate sized farm, and we are satisfied that there is no investment a farmer could make that would pay a better profit in the way of saving than to see to it that all the stock of every kind that he may have about him shall have good comfortable shelter from all winter storms. Common humanity requires it, and his own pecuniary interest demands it.

Big Horses.

Within the last ten to twelve years there have been a considerable number of Percheron horses imported into this country, and not a few Clydesdale. The first is a gray or mottled animal of great weight and heavy proportions, and sometimes as much as 17½ hands high. Few indeed are under 16 hands. They are bread-backed animals with stupendous legs and quarters, and some of them—contrary to their appearance—are quite active upon their feet, being very good steppers. Yet people would not be favorably inclined toward them as roadsters; but for teams and farm-work generally, one would suppose them to be a rare acquisition, drawing heavy burthens and enduring great hardships.

The Clydesdale horse is generally a very dark bay, with black points, and perhaps fully as heavy as the Percheron, but not so high. They ars Scotch, while the other is French, but resemble each other very much in form. The Clydesdale has been very much in demand for heavy work in London and other large cities up to a very recent period; but strange to say its popularity is waning. At a late public meeting in relation to them as well as to use of all very high and heavy horses, after a full discussion of the question, a resolution was adopted in opposition to their use as street draught horses, and an agreement was reached to introduce a lighter animal not over 16 hands in height as being more available for street and road service generally.—*Germantown Telegraph.*

Milking Three Times a Day.

This matter has been discussed in our columns in former years, though little has been said of late. The following, from one of the Cow Essays which will appear in the book comprising the Prize Essay and others, gives the views of "Spencer" on the propriety of milking three times a day: "During the heat of the day the cow should be milked three times a day, at regular intervals—about five in the morning, one in the afternoon and nine in the evening. The quantity of milk and butter is considerably increased, and the quality improved by this practice. The milk is injured by remaining in the udder through the heat of the day, and the cow is made uncomfortable, which of necessity diminishes their usefulness. When cows are milked but twice a day in hot weather, the udder becomes too much

heated and feverih, and the milk is in a similar condition—the cream seems to be melted, and the milk soon becomes sour, the cream does not rise well, and the butter is soft and oily. These difficulties, almost universally rttending butter making at this time of year, are mostly overcome by the practice of milking three times a day, and the cow being near at hand it is a small matter to adopt this practice.—*American Agriculturist.*

Shorthorn Cattle.

The leading class in the cattle shows throughout the entire country will be, with very rare exceptions, the Shorthorn. This is an English breed, originating in the valley of the Tees, and at one time called Teeswater cattle. They are also sometimes called Durhams, from the county in which they were extensively bred. They have long been famed for excellence as both beef and milk producers, but it must be confessed that the practices of modern breeders have been such as to seriously impair the reputation of the breed for the latter purpose. As a class, however, they are still good milkers, and for the production of good beef, under a system of liberal feeding, it is doubtful if they have any equals. They attain a greater size than any other breed, and with rich pasturage and high feeding mature very early and make most excellent beef. In color they are all red, red with white spots, roan, or pure white. They have been more generally disseminated in this country and throughout the world than any other of the improved breeds.—*National Live Stock Journal.*

Feed Calves Liberally.

We have often attempted to impress upon our readers the fact that it is only from the extra food that any growth can be made. For if the calf only gets enough to support its present condition it must remain without growth, and the food it eats is wholly lost, for the calf cannot remain stationary without becoming unthrifty, and this unthrifty condition will greatly interfere with its future growth. Every consideration therefore requires that calves should not be permitted to remain stationary, but should keep up a steady, thrifty growth throughout the season. This is what some skillful, practical feeders mean when they say that calves should never be permitted to lose their calf flesh; and if this can be prevented they will continue to make a profitable growth till fitted for market. There is no feed given to a calf during its whole life that will pay a better profit than this extra food we have advised to be given during the first season. The feeder cannot afford to be illiberal in feeding his calves—his only profit depends upon his liberality.—*National Live Stock Journal.*

The Yorkshirs Swine.

This is the oldest and was originally the largest of the English breeds of swine. In fact, at one time they were of immense size, very coarse, with pendulous ears, and slow in coming to maturity. But the efforts of English breeders, aided by crosses with the Neapolitan and Chinese, have broken them up into several types, until we have the Large Yorkshire, the Middle breed, the Small Yorkshire, and the Suffolk—all from the same original, and all white. The Large Yorkshire is the old Yorkshire, refined and improved by selection. The Small Yorkshire is the finest-boned, smallest-eared, shortest-headed, most dished-faced, shortest-legged, and most easily fattened pig in existence; and the Middle breed is, as its name indicates, about half way between these breeds. They are all white, with occasional blue spots in the skin, which usually increase with age, and which probably come from a remote Neapolitan cross.—*National Live Stock Journal.*

Keep Sheep.

At least a few sheep should be kept on every farm. No kind of stock is more profitable. In starting a flock, a few superior animals should be chosen instead of double the number of inferior ones. The increased value of a flock range from good sheep, will greatly exceed the increased cost of a few good ones to start with, over what inferior ones would have cost. Start with good sheep and keep them good or make them better, by generous keeping. If one intends to half starve his sheep he might as well begin with half-starved ones, as they would be more likely to "hold their own" than those used to better keeping. Sheep-keeping, however, is not profitable when the starving process is adopted, and we would not recommend it to farmers who practice any such methods. When good sheep are purchased to start with and are well kept, sheep-keeping is profitable, beneficial to the farm, and is to be commended.—*Lowistown Journal.*

A Jersey Cow's Record.

It is not rare to find a heavy milker among Jersey cows, yet the average is by no means extraordinary. Possibly a true record of a whole herd of Jerseys as to weight of milk would fall below that of a herd of natives even, and greatly below that of an Ayrshire herd. A notable record of an English Jersey cow, however, is worth recording. The cow is "Luna," owned by Mr. Simpson. In 1876, she gave 8,985 pounds; in 1877, 8,202 pounds; in 1878, 8,368 pounds; an average of 8,518 pounds per year, or equal to a daily average af more than 25 pounds or 11 quarts. One of the most conspicuous characteristics of a Jersey cow, is her persistence in milking, and although she may not give so great a yield, yet by hanging on during 300, or 330 days, she makes up by perseverance, what others do by more copious, but less continuous milking. If there were only more Jerseys like this one!—*American Agriculturist for April* 1.

Lunch for the Team.

A lunch at a fence corner, or from the end of the wagon box, under a tree, is much enjoyed by the team, and the time thus spent is not lost, but more than made up by the freshness with which the animals go to their work again. There are many times when the team of oxen or horses must stop work, and wait while some other matter is being attended to by the driver, and a half hour, or less, spent at lunch, will go far to keep the working stock in good condition through the season of heat and hard work. The same may be said of occasional light drinks if the water is not too much out of the way to allow them to be given.

Over-Big Horses a Mistake.

The London *Live-Stock Journal* observes that "over-big horses for any purpose are a mistake; so the Corporation of London have found out. When they started to do their own scavengering, instead of contracting for it, they selected all the giants they could get—seventeen hands was preferred. The mistake has been found out; sixteen hands is now the favored height. These do more work, are less subject to roaring, and altogether more healthy."

FARM NOTES.

Clean steel with kerosene oil.

A cord of birchwood weighs 2,368 pounds.

Beets of all kinds are injured somewhat by hard freezing.

Twenty-four cubic feet of loose earth will be found to weigh one ton.

Three pints of milk contain as much nutriment as a pound of beef.

Sour milk will bring better returns in eggs than in any other way.

A very small addition of glycerine to common glue prevents brittleness.

It is calculated that one gallon of white paint will cover about forty-four yards of surface.

Heavy fowls sometimes receive severe injuries in trying to fly down from high perches.

It is estimated that the amount of butter made in the Iowa creameries is 50,000,000 pounds per annum.

If hens have a warm house and enough to eat, and of the right kind, they will lay in winter as well as summer.

Algeria exports $5,000,000 worth of wheat annually; of oxen and sheep, $3,000,000; wool, $3,500,000, and of grasses, $2,000,000.

It is said by those who have tried it that bran is as good as the best commercial fertilizer for potatoes and corn, and much cheaper.

The manufactnre of agricultural implements has doubled within the last ten years. In 1850 this industry gave employment to 5,361 hands; this year it gives employment to 40,680.

Among the causes which produce brittle hoofs in horses and cattle the *National Live Stock Journal* mentions the frequent standing in rotting dung heaps or in pools of decomposing liquid manure.

Gas lime is a valuable fertilizer. It may be sown on grass at the rate of about twenty-five bushels per acre, or applied at the same rate for wheat and other crops, harrowing it well into the soil.

At the sale of orchards belonging to Lord Londesborough, a plant of Cattleya labiata (with twenty-five bulbs) sold for $260; four plants of C. exoniensis brought $315, $270, $220 and $120, and a large number of others ranged from $175 down to $25 each.

To prevent hens from scratching their nests make the nests of sawdust. Do not have the boxes too large—only long enough for two nests, with a partition. Place a little hay on the sawdust until the hens get accustomed to it; also sulphur, to prevent vermin.

The largest hog in the country is a Poland-China, 4 years old this spring, lately on exhibition at Junction City, Kansas. His length is 7 feet; girth of neck, 6½ feet; girth of chest, 7½ feet; girth of centre, 8 feet; width across the hips, 30 inches, and weight, 1,532 pounds.

Young stock at pasture should be taken to the barn before the nights become very cold or the feed very scant. There is no profit whatever in keeping any animals that are not constantly gaining, and it is not unusual to find cattle at pasture growing poor in October.

In the United States there are produced 300,000,000 pounds of cheese, 40 per cent. of which is exported, amounting to 120,000,000 pounds. The amount of butter produced is estimated at 1,000,000,000 pounds; of this only about 2 per cent. is exported, yet this small percentage amounts to 20,000,000 pounds.

The sale of the flock of Merino sheep owned by the late Mr. Ingalls, of Almont, Michigan, was well attended. The non-registered rams, mostly yearlings, averaged $22.50 per head. Fifteen registered ewes of mixed Atwood and Robinson blood brought $31 each, while the pure-bred Atwoods brought $36 each.

Peter Henderson names fuchsias pansies, violets, lobelias, phlox, lily of the valley, etc., among herbaceous plants which do well in partial shade, and the ornamental leaved plants, as coleus, caladium, variegated geraniums, centaurea, etc., as more particularly adapted to such situations.

LITERARY AND PERSONAL.

THE COSMOPOLITE.—A fifteen by eleven: (perhaps) between a Royal octavo and a demi-folio, published monthly at $1.00 per year in advance—"far away out in Sioux City," Iowa, devoted to the land and home interests of emigrants and settlers. No. 2 of Vol. 2, of this excellent journal has found its way to our table, and its face is so clear, so distinct, and so varied in its topics, that the pur-blind, nearsighted, and absent-minded are immediately interested in its literary contents. It is said that an unsophisticated Hiberian, in order to illustrate the excessive mortality of a certain district, very naively remarked that "a great many people had died that year who had never died before;" and it may as truly be said that a great many read the *Cosmopolite* who had never *read* before. Its typography is so clear, large, and distinct, that the aged, in poring over its pages, feel a renewal of their youthful sight again. This may seem a small matter in the quality of a newspaper, but we can assure our readers that, from our physical standpoint, it is a great one—one by no means to be—"sneezed at." How many newspapers are cast aside solely because their typography is too indistinct to be read. This is a great merit, but it is by no means the greatest merit of the *Cosmopolite*. Next to being able to read is the quality of the reading matter, and this the journal before us possesses in a high degree. Long live the *Cosmopolite*, far away out in Sioux City, Iowa. The centre of civilization can learn much from its circumference.

ILLUSTRATION INDUSTRIELLE.—Finance, mines, manufactures, agrieulture, inventions, and Chemins de Fer, Vol. 1, No. 1, Montreal, 1er Octobre, 1880. A sixteen-page illustrated quarto, published by Rouilliard L. Dumais, semi-monthly 1st and 15th, at a little over the American Dollar, per annum, with a great reduction made in behalf of societies, colleges, the clergy, and other institutions. This first number contains eleven illustrations and a full page map. Doubtless this will prove an excellent journal to those who are readers of the French languge, but no matter how ably it may be conducted, being in that language, it will be of little value to the masses of the citizens of Lancaster county, even if its teachings were adapted to our locality. We *know* there are some excellent journals published in Canada, and this may be inferior to none of them, and from the topics to which it will be devoted, it seems destined to pursue a noble and useful career, and therefore we extend to it "the right hand of fellowship."

THIRTEENTH annual catalogue of the officers and students of the University at Lewisburg, Pennsylvania, for 1879 and 1880. A royal octavo of 85 tinted pages, containing the usual information on subjects relating to such institutions in general, and this one in particular, admirably classified and amplified. The curriculum is both scientific and practical. Students should by all means consult this catalogue before coming to a conclusion.

J. B. LIPPENCOTT & Co.'s classified catalogue of Publications and Importations containing nearly 100 pages, with prices attached, will be scanned with interest by "book worms" and book dealers. "Never since the world began" have there been greater facilities afforded to stock a public or private library than those of the present period. The September issue of this catalogue will be found an effective means to such an end.

THE YOUTH'S HOME LIBRARY.—This is an eight-page illustrated demi-folio published monthly to amuse and instruct youths and the family circle, by the "Youth's Home Library Co." at Boston, Mass., largely devoted to the advertisement of matters interesting to the family, and especially the youthful portion of it. The "Soapstone," however, is very old. We heard it 50 years ago. Still it is good, very good, and will bear being "an oft told tale."

MISCELLANEOUS.

The Fruit Evaporator.

Within a few years the evaporation of fruit by improved processes, under the stimulus of the current high prices for the product, has received much attention. American evaporated fruits have gained a great reputation in Europe, and now constitute an important item in commerce. The demand, market and price within the last year has added new interest and importance to the business.

Perhaps the most significant fact in this connection is, that simpler and cheaper, yet philosophical evaporators have been constructed, and are now going into use as an auxillary to the farmer and orchardist. Fruit growers should closely investigate and turn to account upon their own premises much, if not all, of the fruit that usually goes to waste or is sold at unremunerative prices. The fact that raisins are sold here for 10 cents per pound, after a carriage of thousands of miles, and evaporated pared peaches is worth 25 to 30 cents per pound, suggests at least investigation.

Seeds and Plants.

We would call the attention of those of our readers who contemplate purchasing seeds or plants during the coming season, to the advertisement of Peter Henderson & Co., New York, now appearing in our columns. Peter Henderson, the senior member of the firm, is known far and wide as a horticultural writer and authority. His books, "Gardening for Profit," "Practical Floriculture," and "Gardening for Pleasure," are now in the hands of thousands. The green-house establishment of this firm covers three acres in green-houses and employs upwards of fifty hands. Millions of plants are shipped by mail or express annually to every State and Territory. Their seed warehouse is the most extensive in the city of New York, and every order received is certain to be filled with goods of the best quality, and as they are producers as well as dealers, "everything for the garden" will be sold at low rates. Feb-3m

"Bo-Peep."

This exquisitely wrought steel plate engraving, by the well-known artist, J. A. J. Wilcox, from a painting by that world famous German artist, Meyer Von Bremen, is one of the most beautiful and artistic engravings ever published. A mother and her child are away from the dusty town for an afternoon's recreating in the "Sylvan Wild" of Germany; golden pages are added to life's book of "Happy Hours." It is a genuine steel engraving, and so excellent in subject and body that its possessor can never outgrow it—become he or she however æsthetic in art. Printed on 22x28 paper. Price $3.00. Published by R. H. Curran & Co., 22 School street, Boston, Mass. Apr-1t.

The Cooley Creamer.

This method of "deep-setting of milk" is coming into so general use, that at the recent dairy fair in New York, it was not shown as a "novelty," but took its place as a common and indispensable adjunct to the dairy. With a Cooley Creamer a dairyman is entirely independent of the weather, and his product is uniform at all times. It is in this, as well as in its convenience, that the Cooley process of setting milk commends itself to all who make butter.

From our foreign exchanges we infer that it has been quite extensively introduced into use in Great Britain.—*Albany Country Gentleman.* Feb-4m.

Inventors, Take Notice.

To any of the readers of THE FARMER who desire a patent we would refer them to William R. Gerhart, Solicitor of Patents, at No. 34 North Duke street, (2d floor) Lancaster, Pa. He has opened communication with the Patent Office, at Washington, and is prepared to push claims with promptness and dispatch. Apr-1m

Ballard, Branch & Co.

In another column will be found the advertisement of Ballard, Branch & Co. Apr-1t

PENNSYLVANIA RAILROAD SCHEDULE.

Trains LEAVE the Depot in this city, as follows:

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*	2:40 a. m	4:05 a. m.
Way Passenger†	5:00 a. m.	7:50 a. m.
Niagara Express	10:05 a. m	11:20 a. m.
Hanover Accommodation	10:10 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy	11:05 a. m.	12:40 p. m.
No. 2 via Columbia	11:07 a. m.	12:55 p. m.
Sunday Mail	10:50 a. m.	12:40 p. m.
Fast Line*	2:10 p. m	3:25 p. m.
Frederick Accommodation	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom	5:45 p. m.	7:40 p. m.
Columbia Accommodation	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express	7:25 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.
Atlantic Express*	12:25 a. m.	3:00 a. m.
Philadelphia Express†	4:10 a. m.	7:00 a. m.
Fast Line*	5:20 a. m.	7:40 a. m.
Harrisburg Express	7:35 a. m.	10:00 a. m.
Columbia Accommodation	9.10 p. m.	12:0 p. m.
Pacific Express*	1:25 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*	5:20 p. m.	7:20 p. m.
Harrisburg Accom	6:25 p. m.	9:30 p. m.

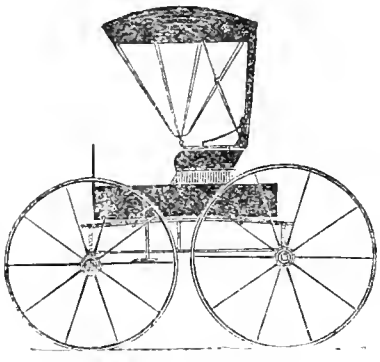
The Hanover Accommodation, west, connects at Lancaster with Niagara Express, west, at 9:35 a. m., and will run through to Hanover.

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

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 one year. [79-1-12

EDW. J. ZAHM,

DEALER IN

AMERICAN AND FOREIGN

WATCHES,

SOLID SILVER & SILVER PLATED WARE,

CLOCKS,

JEWELRY & TABLE CUTLERY.

Sole Agent for the Arundel Tinted

SPECTACLES.

Repairing strictly attended to.

ZAHM'S CORNER,

North Queen-st. and Centre Square, Lancaster, Pa.

79-1-12

E. F. BOWMAN,

Watches and Clocks

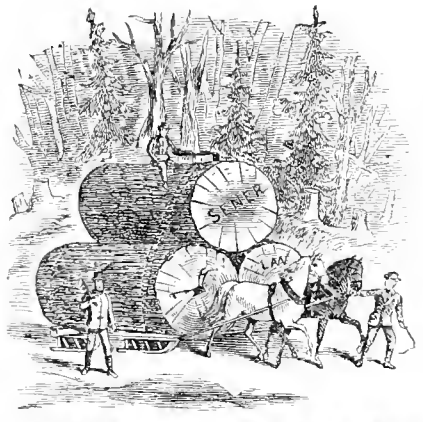
AT LOWEST POSSIBLE PRICES.

Fully guaranteed.

No. 106 EAST KING STREET,

79-1-12] *Opposite Leopard Hotel.*

ESTABLISHED 1832.



G. SENER & SONS,

Manufacturers and dealers in all kinds of rough and finished

LUMBER,

The best Sawed **SHINGLES** in the country. Also Sash, Doors, Blinds, Mouldings, &c,

PATENT O. G. WEATHERBOARDING

and PATENT BLINDS, which are far superior to any other. Also best **COAL** constantly on hand.

OFFICE AND YARD:

Northeast Corner of Prince and Walnut-sts.,

LANCASTER, PA.

79-1-12]

PRACTICAL ESSAYS ON ENTOMOLOGY,

Embracing the history and habits of

NOXIOUS AND INNOXIOUS

INSECTS,

and the best remedies for their expulsion or extermination.

By S. S. RATHVON, Ph. D.

LANCASTER, PA.

This work will be Highly Illustrated, and will be put in press (as soon after a sufficient number of subscribers can be obtained to cover the cost) as the work can possibly be accomplished.

79-2-

$77 a month and expenses guaranteed to Agents. Outfit free. SHAW & CO., Augusta, Maine.

79-2-12

TREES

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.

WAREROOMS:

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,

Nov-1y] (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 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-1yr.

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 Rag Carpet, and scowering and dyeing of all kinds.

PHILIP SCHUM, SON & CO.,

Nov-1y Lancaster, Pa.

THE HOLMAN LIVER PAD

Cures by absorption without medicine.

Now is the time to apply these remedies. They will do for you what nothing else on earth can. Hundreds of citizens of Lancaster say so. Get the genuine at

LANCASTER OFFICE AND SALESROOM,

22 East Orange Street.

Nov-1yr

C. R. KLINE,

ATTORNEY-AT-LAW,

OFFICE: 15 NORTH DUKE STREET,

LANCASTER, PA.

Nov-1y

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor. LANCASTER, PA., NOVEMBER, 1880. Vol. XII. No. 11.

EDITORIAL.

"TRADE AT HOME."

"Buy your goods at the home stores; allow a margin to the merchant over city prices to pay freight and cartage. If you bought goods in the city, it would cost you both time and money to get them home. The profit on your trade will enable the merchant to keep a larger stock and variety, and will help to build up his business. This will help other branches of business, make your town a more desirable place of residence, and indirectly benefit all the country round."

We copy the foregoing from the columns of that sprightly demi-quarto the *Farm Journal*, published by Wilmer Atkinson, of Philadelphia, because, on the whole, we believe it good doctrine, and believe, also, that the best way to throttle the enterprise and impoverish a town, a village, a hamlet or a district is for every one who has money to rush into some other place—the larger and farther away the better—and there spend it with strangers. We believe, also, that the ambition to do the "*biggest* business," wells up from the dominions of Lucifer, and is luciferian in its inception, in its practical operation, and in its aims and ends. Many of these *big* establishments have subsidized the country press in the form of sensational advertisements, in order to persuade the people *not to buy at home*. Railroad excursions are now perverted to the same end. We believe in smaller farms, smaller corporations smaller manufactories, smaller business establishments *and more of them*, as most conducive to the happiness, the contentment, the independence, and the prosperity of a free people. A great many people buy away from home, and out of big establishments as long as they have money; and when they have no money they condescend to buy at home, and out of smaller establishments, which is an intensification of the effect to make "the poor poorer, and the rich richer."

Just now the "Cobden Club," of England, is flooding our country with sensational pamphlets and circulars, which have for their object the persuasion of the American people not to buy at home, but from our disinterested foreign cousins, and, of course, many will be persuaded simply because they want to be.

Of course this is a free country, and in the distribution of the people's patronage they will act "in freedom according to reason," so far as they are capable of appreciating that homely maxim; but a preponderating seeking of self is very liable to lead to its perversion. For instance, there are cases constantly occurring in this country of circumstantial changes, where those who commence on small means finally, through the liberal patronage of the community become prosperous, and in time are able to retire from business with a competency which has been the result of local patronage. But after that they are of but little advantage to the community, buying everything they possibly can abroad, and at wholesale or reduced prices. Of course this is also their inalienable right, but does it not illustrate that self-aggrandizement, rather than sympathy with the community may be the controling business motive from beginning to end. In present practice they are *protectionists* because it is their interest to be so, but in ultimate aims they are veritable *free traders* from the same motives, from whence it would appear that notwithstanding all our professions, when self is involved *principles* are apt to be subordinate *interest*.

There are those whose products have little or no market in the community where they reside, and it would not be surprising if these were to make their purchases in the localities where they make their sales; but it often happens that these persons are better patrons of their communities than those are who depend on said communities for subsistence. *Self* manifests itself in a myriad of phases and each phase is but an extra exhibition of pure human nature. The very individuals who demand the largest price for their own products will patronize those of other callings from whom they can procure *other* products at the smallest price: and even after they can afford to abandon their former occupations they are unwilling to pay the prices they themselves demanded whilst *they* were in the same business.

A BIG LIVER.

"We have received from Miss Anna Buber, of Landisville, the liver of a rooster recently killed. The chicken weighed about eight pounds, while the liver tipped the scales at 1 lb. 1 oz. This is a very avoirdupoisy liver. Such enlargement by disease of some nature or other is, however, not unusual, and in France they are systematically enlarged by an artificial process, making an appetizing dish for epicures. Dr. Rathvon is preserving this specimen in alcohol."

A wag once remarked, on viewing the bare feet of a huge boy, "Well, now, those are the biggest things without *entrails* I have ever seen," and, with one exception, we might have made the same remark in regard to the *organ* alluded to in the above extract from the *Inquirer* of the 13th inst., and that single exception was the *testes* of a hybrid between a Guinea-fowl and a common barnyard fowl, which we received from the proprietor of the Fountain Inn, South Queen street, Lancaster, about three years ago, and which weighed one pound and three ounces, although the bird itself did not weigh more than four or five pounds. Of course these are abnormal developments of the enlarged organs—the result of physical disorder or derangement. But whatever the causes may be, it has long been the practice of the versatile *cuisines* of France—and doubtless, also, of other European nations to produce an artificial enlargement of the liver for the purpose of gratifying the gastronomical tastes of their patrons. We ourselves confess a preference for "chicken liver," but we think our appetite would revolt against it if we *knew* it was diseased. The liver alluded to in the above paragraph *appears* to be diseased.

LEOLINE ON THE LATE FAIR.

She had not visited Lancaster for seventeen years, but she thought she would like to visit it during the advent of the fair. Well, she came, she saw, and was almost overcome. When, on her return home, her husband asked her what she thought of the fair, she replied that "it was good what was of it, but there was so little of it that the farmers of this great county ought to be ashamed of it and try to hold a good old-fashioned fair. But I was says she, more sorry for my son's sake than for my own. He expected to see horses and cattle there, and I would rather have paid 50 cents than 20 cents to have seen a really good fair for his sake." "In fact a fair without a horse race is like a circus without a clown. People attend fairs not only to see agricultural and mechanical productions, but also to be amused. They only occur once a year, and they afford an outlet for those emotional characteristics of isolated human nature, which accumulate during the long intervals between them. It is questionable whether well-ordered races do not attract ten times as many people to a fair as they drive away."

We hope those who have it in their power will respond to the following queries of LEOLINE, through the columns of THE FARMER, or otherwise.

"I would like to have some of those potatoes I saw at the late fair—those blue ones from Perry county. I don't know that I have ever seen any like them before, they were so very large."

"Can you tell me where the apple trees called 'Gloria Mundi' are kept for sale? I would like to have a least one of them."

We cannot tell. Mr. John C. Linville had about the finest specimens of the fruit on exhibition. Perhaps he could tell; or perhaps might furnish scions for budding or grafting. His address is Gap P. O., Lancaster county, Pa.

NEW MEXICAN ITEMS.

From the Albuquerque Review of October 30, 1880.

"We had the pleasure of meeting, the other day, Messrs. H. A. Rathvon and A. B. Robinson, of the Pitkin district, Colorado. They are very intelligent men, and fine specimens of the hardy and honest miner. They speak well of Pitkin's future, as a mining camp, but the many rumors of new finds of precious metal bearing ores of New Mexico, and a knowledge of this delightful climate, where they can work quite as well throughout the fall and winter as they can through the spring and summer, has brought them down to see us. Colorado is a first-rate country to spend three or four months of the year, but the balance of the time it is too cold for anything but a polar bear or a Laplander."

It appears that an interesting discovery has been made in the Manzana Mountains of New Mexico, or rather, perhaps, a re-discovery of mines worked by a pre-historic race. Intelligent prospectors have found the ruins of two towns (or Pueblas) not far distant from each other, whose aggregated population must have reached twenty thousand, an astonishing large population in such a locality, and at such an early period. Twenty-two smelters were discovered in one line, whose height must have reached thirty or forty feet; only a portion of the wall, however, is left standing here and there, but the signs of a once active industry are regarded as indisputable. The ruins of an aqueduct of cut stone were also found, leading from a perennial spring. Some portions of this aqueduct are in good condition yet, and with slight repairs might be utilized. A worked road was traced from these smelters to the mouth of an extensive mine, some seventy feet deep, a mile or more away. This road is tortuous, and winds for nearly five miles over ravines and through canons, although, as already stated, the mine is but one mile from the smelters. This sounds very like a phase of that aboriginal cunning which enters so largely into the mining stories of the middle ages, or even since the discovery of America. What could a detour of five miles to reach points that were only one mile asunder mean, if it were not intended to mislead or deceive those *intruders* which have doubtless existed in all ages of the world, and probably will exist as long as a grain of gold remains in the earth.

It is further reported that the old road alluded to is only about five feet wide, and that the method of transportation over it was evidently not of carts or wagons. On it are trees growing as close together as those of the surrounding forest, with trunks two and a half and three feet in thickness, which we presume means *diameter* otherwise they might have grown up within a natural lifetime. The mines, the ores of which have evidently been worked in the smelters referred to, have apparently been abandoned hur-

riedly, and an attempt was made to conceal its whereabouts; its mouth having been covered up with timbers, which have, in the long centuries since its abandonment, rotted and fallen into the shaft, thus leading to the discovery.

This seems to be the latest mining sensation in New Mexico, and whether those who venture in it shall realize their anticipations or not, the discovery is none the less interesting in a historical view, and invests this continent with additional evidence of being the *older* instead of the *new*. The rock ore has been examined by experts, and although not yet subjected to the assayer's test, it bears all the external evidence of good paying quality. Scientific men have visited the new discovery and have taken an archæological view of it, and these remarkable vestiges of a prehistoric people on this continent, and the results of their observations will be given by Col. Case before the *Kansas Academy of Science*, and also in a popular review. These ruins are located on or near the Rio Pecos, among the lofty spurs of Manzana mountains, in New Mexico, and no doubt will "draw," until they are eclipsed by some newer and more imposing discovery. Indeed, the world, perhaps, would have made but little progress in discovery if the efforts of men had not been stimulated by ambition of some kind—a desire to rule, or to acquire wealth, or to enjoy freedom, to escape from tyranny, a love of adventure, or scientific lore.

We are indebted to a slip from the *Kansas City Journal*, of October 28th, 1880, for the foregoing facts, only a small part of which could be given.

The two Pitkin *heroes* are native Pennsylvanians, one from Lancaster city, and are spending the winter in New Mexico. If on a practical comparison they should find New Mexico preferable to Pitkin they might probably locate there. No doubt both places have their advantages and disadvantages.

TOBACCO PESTS—No. 4.

Rather to my surprise I am compelled to record one of our most familiar "Lady-birds" amongst the tobacco pests of Lancaster county. Perhaps, however, no one ought to be surprised at this, for the fact of its being a vegetable feeder has been known for twenty-five years at least. Still, as it usually confined itself to cucurbitaceous plants, I did not suppose it would become so far demoralized as to attack the *Nicotiana tabacum*. But I have frequently seen both the beetle and its larva feeding on the potato vines, which have a family alliance with tobacco, and the transition, therefore, is not so great after all. The insect I allude to is the "Northern Lady-bird," *Epilachna borealis*, perhaps one of the most familiar and common species. I presume it is known to everybody, at least it has been known to me ever since my early boyhood, as one of the most abundant, as it is certainly the largest, of the true Lady-birds.

Description.

It is shaped like the common "box-turtle," and is of a lemon yellow color, spotted all over with black, and when caught in the hand it emits a few drops of a clear yellow fluid, which has an unpleasant odor. It is nearly as large as the Colorado potato beetle, but rather more hemispherical, and the *larva*, the *pupa* and the *imago* are often found together on the same plant. I never knew them to be destructively numerous, except on one occasion, about thirty-five years ago, and then they developed their possibilities in a very emphatic manner. They did not confine themselves exclusively to pumpkin and melon vines, but also attacked potatoes, green corn and wheat. The larva is a short, convexed slug, similar in form to that of the "Colorado," but not so large, and is of a uniform bright yellow color, covered all over with short, yellow, bristling hairs, and has a pair of very black eyes.

It undergoes all its transformations on the plants it infests, and the pupa is suspended alone by the adhesion of the caudal extremity. About twenty years ago, within one mile of Lancaster city, I removed about three feet of bark from a large dead cherry tree, in the month of March, and counted over five hundred of these lady-birds that had hibernated there during the previous winter. I had often found them thus, but never so numerous as on that occasion. Of course I destroyed the whole of them, for I knew their noxious habits. This circumstance may illustrate their possibilites, for the colony, in a few weeks, might have begotten a perfect swarm of them.

Another Scourge

From Manor township, on one occasion, I received nine "Tree crickets," or "Snow crickets" (*Œcanthus niveus*), that had been captured on a single tobacco plant, in the month of August. I have known this insect for more than thirty years, and never knew it to be very abundant, or yet very destructive, until the general introduction of tobacco culture. It was usually found on trees or shrubbery, but now it shows a decided partiality for tobacco. Mr. E. Hershey, near Creswell, assured me that he has seen at least a dozen on one plant. They seem to be partial to the tender leaves at the ends of the stalk, about the time they are expanding, which they eat into small holes. This does not kill the leaf, nor yet arrest its growth, but, singular enough, the holes increase in size proportioned to the size of the leaf, and although circular when first made, they become oblong as the leaves lengthen, the oblong never being transverse, but always longitudinal; in their young or larva state they either leap away or hide among the leaves when they are approached, but after their wings are fully developed they can both leap and fly to a considerable distance. This insect belongs to the order *Orthoptera* (which includes all the grasshoppers and crickets), family *Achetadæ*, and section *Saltatoria*, or leapers.

Scientific Description,

The male Tree-cricket is nearly white, sometimes tinged with green; the wings lie flat on the back, one lapped over on the other like two battledores; the legs are all long and slender, the posterior pair much the longest, and formed for leaping; the antennæ are very long and thread-like, and are generally thrown backward when the animal is at rest. The female is more robust and shorter in her body; the wings are short and deflexed and her color is various shades of green or brown. Her legs and antennæ are also shorter than those of the male, and at the end of the abdomen she is provided with a sword-like ovipositor. She perforates the raspberry and blackberry canes (as well as the branches of other shrubbery) with this instrument, and deposits her eggs therein, somewhat in the manner of the seventeen year female *Cicada*, where they remain all winter and hatch out in the spring. Tobacco cultivators have observed that these insects are most abundant on tobacco that is growing under or near trees and shrubbery. This is owing to the fact that they breed in such places. They must deposit their eggs in woody perennials, or they could not be carried safely through the winter. If there was no tobacco they would be content to remain in the trees and shrubbery where they breed, but this weed furnishes them a more ample and succulent repast, and they are not proof against the temptation.

Another New Enemy

The *Œdipoda Carolina* has also been detected feeding on the tobacco plant. This is our most common "grasshopper" which, in the month of August, frequents dry roads, and is sometimes seen rising up on its wings and poising itself with a sharp sound, for a moment, and then dropping down again to its former position. Indeed, I am assured that other species of grasshoppers are equally guilty, and especially our common "red-legged" one (*Caloptenus femur-rubrum*.) How the *fancies* of boyhood become the *facts* of mature age. How many boys have invoked the grasshopper to "spit tobacco and I'll let you go," without ever dreaming that a day was approaching when these insects would practically become "tobacco chewers" in deed as well as name!

Still More Enemies.

I have also had sent to me, on several occasions, several species of Hemipterous insects, which intelligent correspondents detected puncturing their tobacco plants; only two of them, however, being either abundant or frequent, but the destructiveness of any, or all of them, is, perhaps, only a question of numbers. These insects belong to the *true bugs*, and are not provided with mandibular organs; therefore, they do not eat the plant, nor cut holes into it. They are suctorial insects, and are provided with a sharp proboscis, with which they pierce or penetrate the plant and suck out its juices. The *first* of these is a small grey insect, about a quarter of an inch long, having generally a conspicuous yellowish V shaped mark on the back, occupying that part called the *scutellum*. This is the *Phytocoris lineatis*, and some years ago, when the potato rot prevailed in New York State, some of the potato growers there, in some manner, associated this insect with the cause. The *rot* passed away, but the bug still remained, and is now here in a new *role*.

The Soldier Bug.

The *second* is a much larger insect, and on that account capable of great injury. This is commonly called the "Soldier-bug," differing more in the organic structure of its sucker than in its general appearance, from the "*Spined Soldier-bug*" which preys upon the larva of the "Colorado potato-beetle." This is the *Euschistus puncticeps* of Say, and belongs to the family *Scutelleridæ*, distinguished by a triangular lobe that extends from the base of the thorax downward over the wing covers. This insect is over half an inch long and ⅜ at the broadest part. Above, it is of a yellowish color, and is finely punctured with grey or brown; beneath it greenish yellow; and it has a longer and more slender proboscis than the species that prey on other insects; otherwise it might easily be confounded with them, and no doubt frequently is. It also lacks the thoracic spines, but these are very variable in their development, and not always a safe distinguishing characteristic.

The Remedy.

As a remedy against all these insects, a new substance is looming up in a vegetable application, which is said to be more effective than either *Paris green* or *London purple*, and much less expensive, besides being safer for the operator. This is a species of *Pyrethrum*, which is beginning to be cultivated, and prepared as an insecticide. Prof. Riley and others have been testing it, and their reports are mainly favorable. In California the plant has been successfully cultivated for some time past, and the seeds have been distributed and trials are being made in other localities. It is dried and pulverized, and applied as a powder or as a liquid infusion, according to circumstances.

SELECTIONS.

FATTENING POULTRY FOR MARKET.

How many farmers there are who, although they are good farmers in other respects, are very slovenly and negligent in regard to their poultry. Were you to inform one of them that his pork was not properly fattened or that his dairy had not been profitably managed, he would be very apt to resent the intimation as an insult. The fattening of pork is a matter worth attending to properly. If this is not done the farmer is sure to know it when he comes to market. The dairy is even more important. The farmer prides himself not only on owning good stock, but in caring for them to the best of his ability, making them as profitable as possible during the year, for a large proportion of our farmers'

prosperity depends on the dairy. Why is it that the majority of them seem to be so constituted that it appears to be a moral impossibility for them to attend to the small things incident to farm-life? I have known good farmers, men capable of cultivating premium fields of corn, wheat, and potatoes, who were utterly unable to understand the value of a good garden and had none worthy of the name.

This peculiar quality of the minds of our farmers is most emphatically shown by the attitude the majority of them occupy toward the poultry industry. I do not know a single farmer who takes any special interest in poultry. Many of them give the proceeds of this department to their wives and daughters for "pin-money." I do not find any fault with this; it is as it should be; but even then they should take some little interest in the matter. Fowls need comfortable quarters and suitable food. If deprived of either they will not thrive. The supply of both these necessaries of fowl life depends somewhat upon the good-will of the farmers. I know that some of these argue that fowls do not amount to much, and that they are not "worth the trouble." Let us see. I think one important difficulty in making them plainly profitable lies in the manner fowls are usually fattened. The appearance of dressed fowls in our meat markets is often enough to frighten even not very fastidious poultry-eaters. The chickens (?) weigh from one-half pound to one pound and a half. The latter is considered a good weight and is rarely reached. They are poorly picked, and the skin tears in many places. But it is the size of a large proportion of the chickens in market to which I would call attention. They are almost all under two pounds in weight, it certainly does not pay to raise such chickens. I think I can hear the great majority of farmers say: "I told you so." But there is a remedy for the evil, and the fault is so great that it is worth some little trouble to seek a remedy for it.

If farmers aimed to keep the best breeds of fowls, as they do of swine and sheep, the poultry interest of the country would make a long stride in advance. I do not propose to discuss in this place the merits of the different breeds of poultry. If the country folks were to feed their young chicks as they do their calves and pigs, the chickens would weigh much more and be much more profitable than under present treatment. Talk to any enterprising farmer about his calves, and the chances are ten to one that he will ventilate his peculiar views about rearing calves, in something like the following style: "Calves must be kept growing *all* the time from birth until maturity. If they are starved for a few days it is so much growth lost, and it is growth that the calves cannot regain." Across the way from the calf pasture there is a chicken-coop, with a brood of young chickens that have had no feed since yesterday and no water since the day before. But these young chickens are very different from young calves. Were I to enlarge on the proper treatment of growing chickens, this letter, intended to be very brief, would grow to the dimensions of a treatise on poultry-raising. I propose to call attention as briefly as possible to a few hints on fattening poultry.

It is a mistake to suppose that a fowl one or two years old cannot be fattened so as to be tender. Above two years or thirty months birds should not be kept. On the other hand, the chickens should be kept long enough to have the proper amount of flesh or lean meat. It will be but a sorry job to undertake to fatten a growing chick, or one that has been starved. If chickens have been fed as they ought to be fed, they are ready to fatten at the age of four or five months. For my own table, I prefer to take them from the yard just as they are at that age, without any extra fat; but for the market a different mode must be adopted. From their habits, chickens do not take on flesh rapidly, unless confined. A friend of mine is in the habit of building a large pen of rails, like a stock-pen, six or eight feet high and covered. In this he confines from twenty-five to fifty chickens while they are being fattened. Although it is much better than allowing them to run at liberty, still it is very objectionable, as affording too much exercise. My own plan, which is very satisfactory for feeding a small number of fowls, is to provide as many coops as there are birds to be fattened at one time, so that each one may be confined alone and out of sight of all others. Each pen is as neat as may be, about one foot wide, eighteen inches long, and twenty inches high, closed on all sides except the front: with no floor, but cleats so placed that a wooden platter, covered with fresh earth, may be used for the floor. The front of the pen should be of a few slats, nailed up and down. The feed and water-tins should be placed outside, as, with pens of the dimensions I have described, there is no room in the pen for anything except the fowl. The water-tins should be replenished twice in the day, and the food-tins at least four times.

The most desirable food for fattening fowls is buckwheat flour. The French poultry-raisers esteem it very highly, and it is much in vogue in all large establishments. Farmers can usually procure it for this purpose at as little cost as any other grain. If, for any reasons, it cannot be obtained, a mixture of equal parts of cornmeal, ground oats and barley flour will be found very satisfactory. A little fresh meat, chopped fine and given daily, will not come amiss. And, as poultry are at all times fond of vegetables and green leaves, they should not be neglected in this particular. A few cabbage leaves, if nothing else offers, will answer the purpose. They will do much to insure good health, and an unhealthy fowl will feed to but poor purpose. Every possible means should be adopted to insure a good digestion. For this purpose a handful of gravel should be thrown into the pen or a few broken oyster-shells. For the same reason the fowls must be kept perfectly quiet, and their coops be darkened for a short time, say a couple of hours, after each feeding. This may be accomplished by dropping a cloth over the front of the pen. If these few suggestions are adopted and the feed is abundant and good, the process of fattening fowls for market will not necessarily take more than two or three weeks, at the farthest.

Care should be taken to prevent the pens from becoming infested with vermin. Before any fowls are placed therein the pens should be thoroughly cleaned and whitewashed. This should be repeated every time a bird is removed and before another is placed in the pen. If one should become infested with vermin a little sulphur rubbed on at the roots of the feathers will be pretty sure to work a cure. All these suggestions must be adopted and properly carried out, and the result will be a great increase in the weight of the fowls and a corresponding improvement in the quality and appearance of the bird. When the fowls are sent to market they will not only command a higher price per pound, but the greater weight acquired at less cost than the smaller weights of fowls not half fattened, while running at large, will net the farmer a much larger profit per pound, in proportion to this outlay, than if the poultry were fattened in the old way.

If extra fatness is desirable, the fowls, if there are not too many of them, may be *crammed* during the last week. A mixture of buckwheat and barley flour or cornmeal is made into dough, and fashioned into rolls about the size of a pencil. Cut these into sections about two inches in length, and dip the pieces in milk before placing them in the bird's mouth. The proper quantity to feed a fowl at one time will probably be learned after a few have been stuffed to death.

The French peasants are such adepts at this, one of the fine arts, that they use a sort of a ramrod to assist the fowl in swallowing. Could they assist the bird in digesting its food, the whole thing would be mastered. But the process of cramming is wholly unnecessary, and in the hands of the unskillful is not seldom cruel and too often the occasion of loss to the poultry-raiser. I think this matter of fattening poultry for market is a subject well worthy of the earnest consideration of thinking farmers. When it is known that poultry can be produced as cheaply as pork or beef (for such is the fact,) more farmers will turn their attention to the industry, breed and fatten birds worth shipping, and ship such poultry to our large cities, at a good profit to themselves. And, what is much more to the purpose in a financial point of view, by so doing a demand for good poultry may be enlarged or created at remunerative prices. *The Rural New Yorker.*

AGRICULTURAL CHEMISTRY.

The Germans, through their agricultural colleges and "experimental stations," have done more, perhaps, than all other nations combined in elucidating the sciences as applied to agriculture, and in paving the way toward rendering this information of value to the farmer. The editor of the London *Agricultural Gazette*, having returned from a visit to some of the principal agricultural stations in that country, gives a description of what he saw, from which we extract the following:

"The agricultural stations of Germany may be divided into several classes. Those visited by us were either 'versuch-stationen' establishments for investigation, and employed as laboratories for the analysis of commercial manures and other agricultural materials—or agricultural academies or institutes, where the teaching of scientific agriculture is the main object, the total number of stations in Germany being about forty. Many of the 'versuchs-stationen' take up a special subject. Thus we found the station at Wiesbaden devoted to the subject of wine; other stations, as that at Kuthurm, confine their attention to animal chemistry. This concentration of study on a single subject is, of course, attended with great advantage. We are told, indeed, that agricultural chemistry was becoming so large a field for investigation in that country that it was rapidly being subdivided into three distinct branches—the soil, the plant and the animal—and that chemists were confining themselves to one or the other of these divisions.

"The field experiments with manures conducted at the various stations were few, and appeared poor in quality. But if great results have not as yet attended their field experiments, this at least cannot be said of their investigations by means of water culture—*i. e.*, supporting a seedling plant over a vessel containing water, into which the roots of the plant dip, the water being supplied with potash, lime, phosphates, nitrates, and other ingredients of plant-food. By this means a number of questions concerning the nutrition of plants have been successfully solved. Among the most striking results may be mentioned the fact that silica, which forms so large a part of the ash of cereals, is really unessential to their growth, and that corn, or oats with a perfectly stiff straw, may be grown without any silica being supplied. On the other hand, the very small quantity of iron present in the ash of plants has been shown to be essential, and that in the absence of it growth soon comes to an end.

"At the physiological station at Kuthurm we saw one of the famous respiration chambers, where everything taken into the animal system from the air is determined. Here, again, we have a method of research peculiar to German investigators, and which has yielded a rich harvest of results. We were fortunate enough to see the chamber in action. It is built of iron, with glass windows, and is perfectly air-tight. The apparatus connected with the chamber admits of air being slowly drawn through it, the air as it leaves the chamber being measured, and the amount of water, carbonic acid and other gases contained therein determined, in order to find out what it had lost during the process of respira

tion. As the composition of the air as it enters the chamber can be easily ascertained, all the data for an exact experiment are obtainable. In this respiration chamber the animal to be experimented on is placed, receiving at the same time a diet of known composition. Thus everything that the animal takes into its system, either in the form of food or from the air, as well as that which leaves the animal as excrement, is known, and the differences, therefore, between these and the constituents retained in the body can be readily ascertained. By this painstaking and thorough method of investigation many important facts have been brought to light. Thus it has been shown that the fat of animals is formed from the albumnoids contained in the food, and not, as has been heretofore supposed, exclusively from sugar, starch and other carbo-hydrates. Another fact established is that oxygen is stored up in the system during sleep and evolved as carbonic acid during waking hours. Another thing we noticed," says the editor aforesaid, "was the uniformity in their method of analyzing manures. In our own country (England) different chemists employ different methods of analysis, which are of various degrees of accuracy. Discrepancies in analyses of manures are thus of frequent occurrence, to the great annoyance of the public, while in Germany the same method of analysis is used at all the stations, so far as we made inquiry."—*Baltimore Sun.*

SAVING SEEDS.

There is no general rule to be laid down in the managemet of seeds; but the details must be learned by experience, as each variety requires a special treatment. When I first began in the seed business I wasted a great deal of precious time, from not knowing how to manage. For example, we saved our petunia and portulacca seeds by picking a solid pod at a time, with thumb and finger, and I paid fifteen dollars for ounces of choice petunia in this way. Now I grow the same seed at a profit at five dollars a pound.

The pansy belongs to the class of plants which scatter their own seeds; and, to save the seeds, they must be gathered quite green, for as soon as the pods turn yellow they burst open and throw the seeds quite a distance. A single row will seed a strip nearly ten feet wide, and, as they are hardy, they will come up in autumn, live over winter, and blossom early in the spring. Phlox is another of the plants that throws its seed by the bursting of the pods; and, after many experiments, I have adopted the rule of watching, and when there is a fair amount of ripe seed I pull it up by the roots and spread it on a large sheet in a warm garret. In this way, with but little trouble and expense, we save a part of the crop, and find it much better to plant more land than to try to save all the seed by repeated hand-picking.

Petunia and portulacca we manage in the same way, except that we cut the portulacca and let it grow up for a second crop. Verbenas must be hand-picked, going over the beds twice a week for several weeks. Its seeds grow on long stems, something like wheat-heads, and the seed at the base is ripe and beginning to waste before those at the point are fairly formed, so that we save only a part of the seed. There are other varieties of seed which belong to the "wind-dispersed" family, which come out, like the dandelion, with a feathery attachment, on which they will be wafted away, if neglected, and these must be gathered every day. The cacallio and some of the everlastings are among flowers, and the salsify among vegetables. The size of a plant is no index of the size or shape of the seed, and it is a curious study to compare the seeds of different plants. A large, coarse plant will often have a seed as fine and delicate as sifted sand; and a small, delicate plant, at its side, coarse, large seed. For example, the foxglove, a plant often growing five feet high, with large leaves and great spikes of flowers, has a seed so small that a single one can scarcely be discerned by the naked eye: while the nasturtium, a delicate vine, has a seed resembling a half-grown nutmeg.

Among the trees we find the same contrast, the seed of the catalpa being lighter than parsnip seed, while all are familiar with the large burr oak and black walnut. Again, some seeds are almost as hard as pebbles—for example, the honey locust and coffee-nut. In handling our ordinary vegetable seeds a good deal of knowledge is required. The cucumber, tomatoes, and some others must stand in their juice and sour before they can be cleaned, so as to present a bright and handsome appearance; and each variety must have its own peculiar treatment, which the seedsman learns by long experience. I have had three hundred bushels of ripe cucumbers in a pile; and to cut them, if one did not know how, would be both a serious and dangerous matter, for the liquid contents of a ripe cucumber are like the white of an egg and as slippery as an eel. But with a slopping-spout securely fixed to an open barrel and a small, sharp knife-blade stuck an inch and a half through from below, the operator has the use of both hands and can quickly and safely open his cucumbers.

When it comes to saving pepper seed, we put a half bushel or so in a barrel and chop them with a spade, until with water we can wash out all the pepper and leave the seed at the bottom. Some varieties of seed—such as beet, parsnip and carrot—are threshed by a machine. I have seen 2,000 bushels of a single variety of beet in a pile on the floor of one of the large curing-houses. Perhaps few of our readers have ever thought what an immense business the seed trade of the United States is; but when we remember that, outside of our large cities, every family uses more or less seeds, it will be seen that the aggregate of the business is enormous. If I could have a monopoly of the trade of a single State in one variety of seed alone—such as radish, beet, or lettuce—at 5 cents per paper, it would enable me to spend a summer in Europe. Every seedman is ambitious to improve old or to establish new varieties of vegetables; and there is, perhaps, no business carried on in which greater pains is taken to improve. Some varieties of seed retain their vitality for many years, while others are worthless the second year, and constant care and watchfulness are necessary to see that the seeds sold are fresh and true to name.—*Ohio Farmer.*

FARM AND GARDEN NOTES.

Mr. Peter Henderson, of New York State, states in the *Gardener's Monthly* that he has discovered that mulching roses in pots to force flowers for the holidays, in January last, with common moss mixed with a good portion of bone dust, say one part bone dust to thirty of moss, has a wonderful effect in bringing forth early roses. In two weeks after the mulch was first applied a change was clearly to be seen, and by the end of May the plants had attained from four to six feet in height, "and though they had bloomed profusely during a period of nearly six months, they were in the most perfect health and vigor." All other plants on which the mulch had been tried showed marked benefits.

We should be thankful for some reliable information about the pink water lily, which it is claimed will grow nowhere else than in the neighborhood of Cape Cod. Cannot some of our Boston contemporaries tell us something about it? We have heard a great deal about their *exclusiveness*, but we don't believe it.

In England black walnut is in large demand, and agents of English manufacturers have lately been visiting Iowa, Indiana and Missouri for the purpose of buying all they could obtain. About twenty-five years ago this wood was so little appreciated in the Western States that it was cut up with common woods into posts and rails for fencing purposes, and much was thus used. There is but little danger, however, of the supply becoming exhausted, as there are vast forests of it in some of the Southern States.

Some horses possess an immense amount of endurance. No doubt many of the ills that horseflesh is heir to are more frequently produced by over-feeding than from an insufficiency of food. An evidence of long-continued service are a pair of horses owned by Joseph Feustermacher, of Topt n, Berks county, Pa., which have been used in ore teams for eighteen years, and are still serviceable.

An immense quantity of tomatoes and other vegetables has been canned in New Jersey this season. At Campbell's canning establishment, Camden, as many as 300,000 cans of tomatoes and peas were thus put up during the past three months. Two hundred hands were employed to do the work. The demand for these goods is largely from the South.

The crops from Canada are reported this year to be satisfactory. While the yield of wheat is not so heavy as last year; other crops, particularly barley, oats, hay, roots and fruit were heavy. The potato crop of Prince Edward Island gives a generous return, and altogether the farmers of the Dominion are better situated pecuniarily than they were a year or two ago.

The hop crop of New York State turns out to be a very superior one, enough not only to supply all over our consumption, but to have several thousand bales to spare. This is good news. Some years the crop is almost an entire failure, entailing great loss on the cultivators. Cooperstown seems to be about the headquarters of the crop of New York.

The *Pacific Rural Life* says that thoroughbred stock in considerable numbers has been sent to Asia, the Sandwich Islands and Mexico, from California. Shorthorns and Jerseys are favorite breeds in that State. In raising horses much progress is now being made, and many superior animals have been bred there within a few years.

No family in China is said to be too poor to keep poultry. About every shanty struts a pert cock and a few hungry hens, which lead a precarious existence and never become diseased from over-feeding. During winter they get barely enough food to sustain life.

The late arrival of two American steamers at Revel, Russia, created a decided sensation in that country. Owing to the high road charges grain is said to be imported from this country cheaper than it can be shipped from some of the agricultural districts of Russia to the seaboard.

Owing to the heavy apple crop the shipments of foreign ports this season promise to far exceed those of any former year. The other day a steamer took from Boston 10,673 barrels, one of the largest cargoes of the kind ever shipped from an American port.

BARRELS MADE FROM PULP.

Barrels made of pulp are among the latest inventions, and, as described by the Detroit *Tribune*, they are likely to become an important article of commerce. The advantages claimed are lightness, durability and cheapness. The body of the barrel is all made in one piece from coarse wood pulp. The pressure to which it is subjected is 400 tons. The heads are made of one piece in the same way, and when put together the barrels are exceeding light, strong and satisfactory in every way. There are two kinds, one for fruit, flour and other dry substances, the other for oil, lard and liquids of all kinds. A flour barrel made in this way and filled can be dropped from a wagon to the pavement without injury. Fruit packed in these receptacles keeps longer than when put in the usual way, being drier and excluded from the air. The barrels for liquid substances are made by subjecting the first form to a simple process, and oil can be kept in them without any leakage. The saving in cost is about 50 per cent. Steps are being taken for the formation of a company to manufacture barrels, tubs, etc., by this new process.

MANURING FRUIT TREES.

It makes but little difference whether the manure dissolves on the surface and filters through roots of grass to the feeding roots of the apple trees, which are then near the surface, or is plowed under and left in close contact with the feeding roots and there dissolved; in either case the wood and the fruit of the trees are nourished and growth follows, but the withholding causes poverty.

The necessity of manuring being agreed on, when is the best time, is the next question? Corn is greatly benefited by the application of manure to the surface of sod ground the previous autumn, and many have said that where they have commenced drawing out manure the latter part of autumn and continued drawing, as they made it through the winter, spreading as they drew, the corn was best on the side on which the first manure was spread, and poorest where the last was applied. If this is true in corn it must also be true in apple trees. Most of the growth of apple wood, and fruit spurs, for the next season's fruit, is made during the months of May and June, and consequently it is quite important that fertilizers should reach the roots before that time, and to insure such a result the manure should be applied on the surface during the fall and winter.

An orchardist should commence drawing out manure from his barnyard and spreading it under and outside of the exterior branches of his trees, as soon as possible after the apples are gathered, and continue the operation until at least twenty good, large, two-horse loads are applied to every acre. There is no use in spreading it near the base of the tree, as there are but few feeding roots there, and it affords nesting for mice that will sometimes girdle the trees when there are heavy snows.

Now we would suggest to such farmers as have barren, thriftless orchards, that they apply this winter to their orchards the manure they usually apply to their corn crops, provided they have not enough for both, and then manure the corn next spring, in the hill, with commercial fertilizers, hen manure, etc., and see if they are not better paid than by using their barnyard manure on the corn and allowing their orchards to starve.—*American Rural Home.*

SENSIBLE VIEWS ON FARMING.

Mr. Robert Bruce, of Smeaton, Yorkshire, was awarded, in the early part of the last month, the highest prize offered for an essay on the subject of "How Farming can be Made to Pay in Great Britain." Mr. Bruce was the better equipped for a discussion of this subject from the fact that he had just returned from a visit to the United States, where he had made himself acquainted with our "great resources and go-ahead farmers." As the result of his investigations he is "not at all despondent," he says, "as to the future of British farming" if the antiquated land laws and the restrictions imposed upon the tenant farmers are done away with. But to be successful the system of farming at present in vogue must be radically changed. The course laid down by him for the British farmer to pursue, as a means of deriving a profit from his soil, notwithstanding he has to compete with the great West in the matter of breadstuffs and provisions, is so entirely applicable to our farmers in the older Atlantic States, who also suffer from Western competition, that it is well worth noting. Without going into the reasons he presents for the advice he gives, we reproduce the four rules he lays down for making the occupation of farming profitable. These are:

"Firstly, by greater attention to the cultivation of the soil, working more as the gardeners do, in thorough manner. Greater attention must also be given to the quality of the different seeds sown, making sure that the best obtainable are put in the soil, and that the kind sown suits the soil and climate.

"Secondly, by greater attention to the live stock kept, making determined efforts to keep only stock of good quality, and breeding more from good sires; keeping them better and more comfortable, and getting them ready for the butcher at an early age.

"Thirdly, by paying greater attention to dairy produce, making sure that the most is made of it, and that what is made is of the best quality.

"Fourthly, by greater attention to so-called little things, such as fruit, poultry and bees."

Every one of these rules are as deserving to be followed by our farmers of the seaboard States as by those of Great Britain. Putting roughly the cost of transporting grain from the far West to Baltimore at 50 cents per 100 pounds the present rates from Kansas City being 47 cents per 100 pounds for corn and 52 cents for wheat they start with a margin of 30 cents per bushel in their favor. With such tillage as Mr. Bruce recommends it would not be difficult to raise at least 30 bushels of wheat to the acre, while the largest product of the great Dakota farms does not exceed 25 bushels to the acre. The difference, therefore, under such cultivation to the Eastern farmer would be a saving of 30 cents per bushel in transportation, and an increase of 5 bushels in the yield per acre, with other crops in proportion. He has also in his favor a monopoly of the market for hay and wheat, rye and oat straw, which will not bear transportation for long distances. The soil that will bring 30 bushels of wheat to the acre will produce, in a fair season, at least two tons of timothy, with the promise of a similar crop from the same field for several years in succession. It is doubtful whether it will pay, with us, to raise live stock for market; but there is always a ready sale for dairy produce, and at high prices if it is of the best quality. Finally, as Mr. Bruce points out, the profits of a farm may be considerably increased "by greater attention to little things," and he cites as among these "fruit, poultry and bees." On these heads he remarks: "If we consider the immense amount of money annually paid to foreigners"—outsiders, we might more properly say, as far as we are concerned—"for butter, cheese eggs and fowls, and then reflect that our own farmers could easily supply all the people's wants, we at once see there is a profit to farmers here which slips, year by year, through their hands unnoticed." All this is so true that we commend it to the thoughtful attention of those farmers who complain of Western competition, and who have failed to discover that they have many sources of profit with which the West cannot compete, and that, even in respect to Western grain, they have, under any circumstances, a difference of 30 cents per bushel in their favor.—*Baltimore Weekly Sun.*

FRENCH REPORTS ON DISEASES OF VINES AND REMEDIES—AMERICAN WILD VINES—PHILOSOPHY OF PLANT LIFE.

The grapevine disease is discussed in the annual industrial report of France. The phylloxera vastatrix is a microscopic insect that stings the root and kills it, and finally destroys the vine, the branches turning yellow. Sulpho-carbonates introduced among the roots kill the insects, but other insects come. Submersion, where water is accessible, does the same. In all cases there is found no permanent protection by doctoring externally. Fifty districts in France are already ruined, and every year adds to the list. Unless some effective remedy be found France will, in time not remote, cease to be a wine country. "Our prosperity cannot be assured unless our wine men plant new stock known to have vigor to resist the fatal puncture of the destroyer, and unless our fine French vines can be preserved by grafting on the healthy stocks."

Twenty years ago American cuttings were sent to France from a nursery in Georgia. There were many varieties. Hundreds of thousands of vines are now growing from those cuttings. These vines may be recognized from afar, in vineyards stricken with the disease, by their being in full vigor. This experience gives satisfactory proof that American vines can be got that will resist the phylloxera. Here and there an American vine is found punctured, but never to the heart of the root. The superficial wound heals and leaves no impression on the plant. French roots are stung and poisoned to the vital centre. All these American vines, of lofty varieties, are grafted with favorite French stocks, which have derived notable vigor and large fruitage from the American sap, without losing any of the delicate flavor of the grape or impairing the value of the wine. Here, then, is our salvation assured, if our people will lose no time in its adoption.

But grafting requires skill and nice manipulation, and many fear the expense and liability to failure. This has led to the discovery of a simpler and better way to attain the same object, more in accord with nature. The plainest farmer can do it without aid from experts. Take a French and an American cutting, each having five buds, unite them at the third bud, tie them together and so plant them. They will so assimilate that the twain become one by blending the gap of their roots. The plant is thus invested with American vigor and French nature combined. "The American root soon smothers the other, and without grafting we obtain what we desire, viz: We get fruit from French vines nourished by American roots." Several varieties of proved American vines are named, viz: Jacquez, Clinton, Black July, Salonis, Taylor, &c. In California innumerable varieties can be found equally available for the same purpose.

This French system is called blending, to distinguish it from grafting, which it supersedes. If it be successful in regenerating exhausted vines, it must be equally effective in all fruit trees. Apples and pears in California are losing vitality, so that in ten years Oregon will have to supply us. But by blending cuttings with slips of wild or of seedling trees, existing varieties may be born again. Blending must also be applicable to shrubbery, and to the vegetable kingdom generally. Americans will require something more than theory and initial experiment to convince them that exhausted vitality and consequent want of vigor to resist decomposition by insects and other means can be regained, with prolongation of the allotted period of the race, by artifices of any sort. At best, blending can only be, like grafting, temporary revivification, which but puts off the final degeneration that is now visiting all grafted stock, of whatever kind, in Europe and America.

Life in nature depends upon rotation and variety for health and reproduction. "Variety is the spice of life, that gives it all its flavor." All efforts to defeat this law by restricting growth to a few favored species, to the exclusion of natural varieties, must end, as our grafting system has ended, in disaster, compelling us to return to natural means of propagation from seed. The great need of agriculture is the study of the philosophy of plant life. The most exigent law is that of generation, which forbids all tampering and intermeddling of art, under penalty of retribution, which is now being administered. Farmers know the value of rotation of crops; why not rotation of fruits?

Let every man who has an orchard of grafted trees prepare for replacement by new varieties grown from seed. A nursery is good, but a field is better. Plant six seeds to the place where one is to be standard, and when they show fruit let your choice stand and cut away the rest. Here and there save one remarked for rugged vigor and *inviting* fruit. One such tree in twenty should be in every orchard to invigorate the rest in the time of flowering, that being the nuptials of plants. Let the life of these fructifiers be wild as nature. Let them branch to the very ground to mulch it. Keep away the pruning-knife. Leave them to nature, which will intensify their reproductive power and impart vigor to their pampered associates.

What peculiar element does chemistry find

in American vines (that is not in the French) to which may be attributed their power of resisting the phylloxera? To this a French agricultural chemist replies: "I find malic acid in all American vines and not a trace of it in native French vines." This may induce examination to determine if it be diminution of malic acid in our apple tribe that invites the codling moth to destroy it.—*Baltimore Sun.*

PREPARING AND SEEDING GROUND FOR MEADOWS.

The practice of sowing grass and clover alone without any so-called foster crop is becoming general. It is found that the supposed nursing crop has quite a different effect from fostering or encouraging the tender grass, but chiefly robs and destroys it, unless the soil is unusually rich. The more successful practice is to prepare the soil by thorough plowing—rolling if necessary, and harrowing so as to procure a fine tilth, and sow the seed early in the spring, without any accompanying crop. The preparation of the soil in the spring is completed by a dressing of fine manure, and a thorough harrowing, a shallow plowing being given if necessary. Harrowing will be sufficient in the majority of cases. After a fine harrowing the seed is sown. A mixture will be found most satisfactory. Mixed crops, as a rule, yield in proportion to the increase of seed. Thus a usual seeding of timothy or clover, or both, will give a certain quantity of hay; if orchard-grass is added, a crop of hay will be taken equal in amount to that expected from the timothy or clover, but two or three weeks earlier. A second crop may be taken later, of which the timothy will furnish the bulk, and the orchard-grass will fill up the bottom. If Kentucky blue grass is added, or Rhode Island bent, a later crop will be given, which can be mowed for rowen, or will give the best of fall pasture without injury to the roots of the timothy or orchard-grass. The mixture here indicated is one that may be suggested for trial. It has been tried and found successful and desirable in all cases, and deserves a more extended application. The seed has been sown in the following proportions: One bushel of orchard-grass, one-half bushel of Kentucky blue grass, one-half bushel of Rhode Island bent, ten pounds of timothy, and six pounds of red clover. The blue grass appears later than the others, and fills up the vacant spaces left by the falling clover, which disappears after the second year. The advantage of the mixture is chiefly that a fine thick bottom is produced, which covers and protects the ground between the stools of the coarser grasses, and which furnishes a second crop for hay and a third for pasture. For soiling purposes the mixed seeding is even more useful than for pasturage, as the grass may be cut at any season without danger of injury from a dry spell. These particulars are more pertinent for the spring than the present season, yet if one would avail himself of them he must make preparation now, and not delay.—*Am. Agriculturist.*

NEW YORK TOBACCO MARKET.

Messrs. J. S. Gans, Son & Co., Tobacco Brokers, of No. 86 Wall street, New York, report moderate activity in that market during the month of October. They confirm what we have several times said about the large sales of this year's crop in New York and Connecticut. The export demand has improved a little.

Moderate activity has prevailed throughout the month, and whilst no very large lots have changed hands, we notice a gradual absorption of all sorts at satisfactory prices, with continued inquiry from manufacturers, but few of whom hold large stocks.

Pennsylvania continues the favorite, and although a fair business was done in New England tobaccos the demand for this sort has latterly fallen off.

Ohio meets with more favor, chiefly for binder purposes.

In new crop we deprecate at this early season to report large transactions in New York State, particularly "Flats," and moderate purchasing in Connecticut; although the quantity of the former is limited, it might have just as well been bought 60 or even 90 days later, then certainly at lower figures and more intelligently. So far the curing season has been unfavorable, and buyers of tobacco on the poles are assuming risks which prudent merchants should not.

Considerable Ohio and some few lots of low graded Pennsylvania have been disposed of in Bremen, but at very low figures.

Sales.

CROP OF 1878.

New England,	50 cases.
Pennsylvania,	150 "
New York,	50 "
Ohio,	330 "

CROP OF 1879.

New England,	2,500 cases.
New England, Havana seed,	200 "
Pennsylvania,	4,500 "
New York,	800 "
Ohio,	1,400 "
Wisconsin,	200 "
Wisconsin, Havana seed,	100 "
Total sales,	10,280 "

Of which 730 cases were for export.

Quotations.

Pennsylvania:	Crop of 1879.
Assorted lots, low,	10 @12
do fair,	13 @16
do fine,	18 @22
Wrappers,	18 @45
Fillers,	6 @ 7½

Exports of Seed Leaf and Cuttings since January 1st, 24,602 cases; same time last year, 18,400 cases.

ARABIAN MODE FOR TAMING HORSES.

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

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

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

The directions given for taming horses are as follows:

Procure some horse castor and grate fine. Also get some oil of rhodium and oil of cumin, and keep the three separate in air-tight bottles.

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

Immediately rub your hand gently on the horse's nose, getting a little of the oil on it.

You can then lead him anywhere.

Give him a piece of the castor on a piece of loaf sugar, apple or potato.

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

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

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

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

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

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

HOW THE WOODMAN'S AXE IS DECIMATING THE MICHIGAN PINERIES.

Alpena is one of the many beautiful Michigan towns that are springing up along the lake shore at the mouths of rivers whose tributaries flow through the great pine forests of the State. Every river throughout the constantly receding timber belt of Michigan, now reaching from the Saginaw Valley to the Straits of Mackinaw, sufficiently large to float a raft of logs, becomes a highway between the lumber camps, wherein motley crews of men, gathered for a few winter months from all nations of the world, rob the forests of their precious pine. The time is near when the pine, hoarded by nature for ages within the bosom of her forests, will be exhausted; when the rough woodsman will have departed to other lands; when the sawmills, now bustling with life, will stand silent and deserted. What is to be the future of this region when that time shall arrive? Is it to remain a useless waste, awaiting the slow restoration of its forests? It is certain that the agricultural value of the land, stripped of its pine, is proving to be much greater than was formerly supposed. Clearings are being made, and good crops of wheat, oats, hay and potatoes raised. A tide of emigration in this way is following the woodchoppers, and converting the mutilated forests into prosperous farms. When the terrible forest fires of Michigan swept over 10,000 acres of fine land along the Lake Huron coast, south of Saginaw Bay, and destroyed whole towns, many lives, and millions of dollars worth of property, the lumbering interests were utterly destroyed. Not a single mill, I am told, in all that region has since been built. It was thought the fire had ruined the future of the burned district, and that it would be henceforth valueless. These fires occurred the year of the Chicago fire, just ten years ago, and to-day this burnt district is said to be the finest farming region of the State.

The destruction of the pineries of Michigan, Wisconsin and Minnesota is a matter of importance. How long will the forests of these three States that contain the chief stores of pine timber on this continent east of the Rocky Mountains continue to supply the enormous drains being made upon them? One example will show how rapid is the process of destruction. The Saginaw valley formerly contained the largest and finest pine forests in Michigan. Mill after mill was built along the banks of the river, until their united capacity reached 600,000,000 feet of lumber per year. To supply these mills the pine in the Saginaw valley has been already in great part exhausted, and the mill owners are obliged to bring logs from other rivers, often as far as 150 miles distant, to supplement the stock of the Saginaw river. The output on the river has reached its climax. No more new mills are built or old ones replaced. The business must gradually diminish in volume until the Saginaw valley, now the greatest lumber district in the world, shall hear the buzz of the saw no more.

Talking to a gentleman of Alpena, who has

witnessed the growth of the lumbering business of that place almost from its commencement, and whose business for years has kept him accurately posted as to the quantity and location of the pine in the Alpena district, he said that, dividing the number of millions of feet of pine timber tributary to the Alpena river by the annual capacity of the Alpena mills, it gave them fifteen years' supply. These figures agree very closely with those given me a few weeks ago by the president of the largest logging company on the Mississippi river, operating in the Wisconsin pineries, a region that has been worked much less extensively than the Michigan pineries. They would last, he said, thirty or forty years. The Minnesota pineries are not so large as either of the others, and will probably not survive them. In from twenty-five to forty years the last tree will be cut, and the entire country from Maine to the Rocky Mountains must learn to live with meagre quantities of pine lumber brought at great expense from distant countries.

The pineries cannot be replaced. A full-grown tree represents hundreds and hundreds of years of growth. I saw small pines, not larger around than a man's arm, bearing the scars made by the axes of the United States engineers, thirty-five years ago. What ages, then, must be required to produce a tree three or four feet in diameter? When these forests reach the condition of the pineries of Maine and New York, and become extinct, no new ones will take their places. The American of the near future must learn to hew and build without pine, and marvel at the thoughtless recklessness of his ancestors.—*Cor. Cincinnati Gazette.*

THE PRINCIPLES OF PRUNING.

The art of pruning is one of the simplest as well as one of the most important operations connected with horticulture. Yet it is one that is frequently neglected or ill-performed. The principal objects of pruning are to induce a vigorous and symmetrical growth, remove superfluous wood, and promote fruitfulness.

Whatever be the form of training adopted, there are some general principles underlying all pruning operations which should be observed to some extent, though no precise rule can be given for all cases. Briefly stated, these principles are: When the growth of wood is large and the tree or vine vigorous, more wood should generally be cut away than when the tendency to the production of wood is small. When there is a great tendency to the production of both wood and fruit, pruning of the wood and thinning of the fruit, or both, may be necessary in order to produce the best specimens. Shy bearing in trees is sometimes treated with root pruning. When an upright growth is desired, pruning of the lateral growth is required, and when a rounded, bush growth is wanted, the main or central stem and longest laterals should be shortened in.

To prune successfully requires taste and good judgment, and much beauty and utility can be given to the form of a tree by proper pruning; but too much or unskillful pruning may be done with scarcely less injurious results than those that follow the neglect of the operation. Pruning at the wrong season, the removal of very large branches, and the neglect to prune, are responsible causes for the irregular-headed and unshapely trees which are found in far too many orchards.

In order to have well-shaped heads on trees, pruning and training should be commenced when the trees are quite young. Many trees are trained with too low heads, which much interfere with the work of cultivating an orchard. In garden culture, or for ornamental specimen trees on the lawn, low-headed, horizontally branched trees are sometimes desirable; but for orchard culture the heads should be high enough to allow a convenient approach in cultivating. Removing large limbs from trees is a practice much to be deprecated; but whenever necessary it should be done very carefully, and at the proper season, so that the wound will heal rapidly and the tree suffer the least loss of sap. The removal of large limbs also causes an unsightly trunk, making it rough, harder to clean and a more secure harbor for insects, moss, &c.

When superfluous roots or branches are removed in their incipient stages of growth, no such effects are produced. Summer pruning, or more properly nipping of the shoots as they grow, can often be employed to advantage, and whenever it can be it is far preferable to pruning when the wood is dormant. This method of pruning, if begun in season while the tree is young, will cause an even and symmetrical growth, which cannot be so well attained when all the pruning is done when the wood is dormant. Spring-set trees are generally in need of thinning out of superfluous branches, shoots and buds of the same season's growth, which can be done better early in the season than when the wood becomes dormant. Blackberry and raspberry bushes can be rendered much more shapely, and of more substantial growth, by nipping in the canes when about three feet high, than by allowing them to spindle up; in which condition they are not as well fitted to carry a crop of fruit, or withstand severe cold or storms.—*Examiner and Chronicle.*

GRASSES FOR DECORATION.

A bouquet or vase of properly-dried and tastefully-arranged grasses of the more graceful sorts is a very pleasing decoration for the parlor or sitting-room in winter. The beauty of a grass depends largely upon the delicacy of its flower clusters, and their graceful and orderly arrangement in the *panicle* or "head." As a type of beauty among the larger grasses, a long feathery plume of the Pampas grass may be chosen, and indeed it is a very pleasing object when preserved of its original shape and color. We must here enter a protest against the violation of nature by dyeing the plumes of grasses any color whatever. They, to our taste, can not be improved upon by being colored a deep crimson, an unnatural green, unpleasant black, or any other color. Grasses for their greatest beauty should be gathered just as they are fully in flower, and hung up or spread out to dry in a place that is free from dust. If a grass is gathered after it is beginning to mature its seed, the floral parts will become brittle and soon fall to pieces, and fail to be the objects of beauty that they would be if gathered when just at the opening of the flowers. There are a number of native grasses that are worthy of a place in such a collection. In general, it may be said that any grass that is attractive for its delicacy, grace and color while growing in the field, will not be disappointing when it is tastefully arranged in the house.

PRUNING DWARF TREES.

A lady correspondent asks: "Will some one tell me how and when to prune dwarf pear trees? If they must be washed at this time of year, and what to put round them to make them grow?" We reply that they can be pruned at any time from now up to the first of March. If any of the wood is needed for grafting it can be stuck two or three inches in the ground, where it will be found to be in good condition when the grafting season comes round. Pruning now and until spring reduces the extent of the tree and foliage and gives it form; but pruning or shortening-in in June will produce fruit spurs for the following year. How to prune cannot always be advised. Where the growth of this year has been rampant, cut back to within two or three inches of the old wood, and thin out some of the young wood. Your own judgment must direct you as to this, trees being so different in habit and growth. As to washing the trees, it ought to be done at once, and scraped also if they need it. A rich soil is all-sufficient to make your tree grow; if not rich give a good top-dressing of manure now, to be carefully worked-in in the spring.—*Germantown Telegraph.*

PRESENT GARDEN HINTS.

At this season of the year no time should be lost in tidying up. The leaves have fallen from the trees and should be raked together and carried to the compost heap or used for covering tender things. There are some perennial plants that are hardy, if covered with a few leaves, that often get killed with such covering. This is especially the case with the chrysanthemum and with others when there is no snow. A thick mass of leaves is, however, an injury. It encourages dampness. The thinnest sort of a layer is enough, and on this a little earth should be sprinkled to keep the leaves from flying away.

Then there are always some few unfortunate flowers left out to die because we have no use for them. We do not pull them up, but let them remain as long as they will till the frost blackens them. Now they may be gathered together, with the tops of dahlias, gladiolas, tuberoses, &c., and taken away.

Tender roses, such as Saffrano and other teas, require some protection. It is much better to dig up all these tender roses, and in some high spot, where the water will not lie, set them thickly together as if we were planting them, and then throw earth just enough to cover them over the whole. Those who have tried it speak well of the plan.

Many things that are hardy when large are a little tender when young, and hence people protect them with straw. But the thinnest layer of straw is better than a thick one. A thick mass of straw retains water, and the leaves and branches rot before spring. The straw is not so much to keep out the frost—it does little of that—but to keep off the wind and the direct rays of the sun, and a thin layer does as well as a whole bundle will do. Cedar branches are often used as well as the boughs of other evergreens, and are very good, not only because they are quite as effective, but also because their color is in their favor. In all protective matters avoid fresh, strawy litter from the barnyard. It is full of salt, and this is destructive to the leaves and branches of plants. It is especially bad for evergreens.

A large number of ornamental shrubs are raised from cuttings, and these are taken off at this season, tied in bunches and buried in the earth. When spring comes they are taken out and planted upright in the ground with their tops above the ground. Why it is that they should do better when cut off now than if left on the plants and cut off in the spring, we cannot see, but it appears to be the fact.—*Germantown Telegraph.*

FENCING AND FENCES.

On this subject the *American Agriculturist* says half the fencing in the country is needless and should be abolished, and will be when the best system of farming is adopted, and proper laws in regard to animals as "free commoners" are enacted and enforced. That time has not arrived. A large amount of fencing will be necessary wherever domestic animals are kept at all. Almost half of our country is devoid of wooden fencing materials, and, in most of the rest, timber is disappearing and increasing in cost. Wood fences—except those of chestnut, locust, red cedar, and a limited number of other woods, none of them abundant—decay rapidly, and need constant repairing and renewing.

Now we have every reason to believe that iron and steel can be utilized in the construction of fences that will be better, cheaper, and ten times more lasting than ordinary wooden structures. The supply of iron and steel made from iron is inexhaustible, and cheaper modes of production are rapidly developing. The aim of these chapters is to not only gather and disseminate what is already known as to iron and steel fencing, but also to stimulate invention in that line.

Metal Fences vs. Prairie Fires.

There is one important point, not previously referred to, in favor of metal fences, posts included, for the new prairie pasture

lands, where the annual burning of the grass takes place. Such fences will not be consumed, though if not standing on a strip of plowed land, they may be warped and slightly injured. As is well known, a great amount of fencing is annually destroyed by these prairie fires. This consideration alone is a strong point in their favor. As plain wire is practically useless the barbed wire, with all its objectionable features, will be used until a better metal fence is supplied.

Relative Cost of Iron and Wood Fence.

Many letters ask us to give the present difference in the cost of wood and iron or steel fences. We have not yet gathered all the data which we shall be able to give, but some approximate figures may be presented. For a comparison take the common post-and-board fence, and the Improved Brinkerhoff Steel Strap (No. 19), or any of the twenty forms of Barbed Wire given last month. The price of these in quantity may be estimated at 11 cents per pound, 1 pound to the rod. The cost of boards 16½ feet long and 6 inches wide we will put at 12 cents each, that is, $15 per 1,000 feet board measure, which is below the actual cost at points distant from the lumber regions. Suppose also that it is practicable to set the posts 8½ feet apart from their centres. The steel strap or wire fences require only one post to the rod. The cost of the posts we will reckon at only 12½ cents each, which is below the average. We then have

FOR 100 RODS OF FENCE.

Post and Board.—4 Boards High.		*Galvanized Steel Fence.—Four Strands High.*	
400 Boards at 12c.,	$48.00	400 rods 11c.,	$44.00
200 posts at 12½c.,	25.00	100 posts at 12½c.,	12.50
50 lbs. nails at 4c.,	2.00	400 staples,	.75
Labor about (?),	25.00	Labor about (?),	10 00
Total,	$100.00	Total,	$67.25

The cost of labor will depend upon whether the posts are driven, or set in holes dug by a spade or by post augers. The cost will be only half as much for the steel fence, as only half as many posts are used. The cost of erecting the board fence will be several times greater than putting up the metal straps or wire. It is a very safe calculation to say that post and board fence will cost nearly 50 per cent. more than the metal fence; that if 100 rods of the post and boards can be put up for $100, the metal fence will not cost over $70. No allowance is made for saturating the boards with any material to give them a fair durability. Once put up, the metal fence will outlast half a dozen wooden fences, except the posts, which will have the same durability in either case. Is there any doubt, then, that metal fences are to be preferred on account of cost, durability, and frequent repairs? The comparative effectiveness of the two is the chief question to be decided; and if this be settled in favor of the metal fences, the only question will be, which is the best kind of metal fence.

An important suggestion comes to us from a subscriber in Western Kansas, who has had considerable experience with barbed fences—a suggestion that may count somewhat toward obviating the strongest objection to barbed fences. He raises a line of low embankment along under the fence wires by turning in furrows from either side. The ridge thus formed, together with the furrow left on each side of it, arrests the attention and progress of animals before they actually reach the barbed wires, and helps prevent their being injured seriously.

How far and where it may be expedint to use the leading varieties of barbed fencing is still an open question for examination and discussion. Also, which of the various kinds are the best for general use, when any may be used. One thing is pretty well settled, viz: that none of the long sharp-pointed barbs, having perpendicular sides, or those nearly so, and none of those inclined in any direction to act partially as hooks, are adapted for use along highways or where clothing will be likely to come in contact with them. None of the above barbs are adapted to small inclosures, or where valuable animals are in danger of contact with the long, sharp points of any form. Though they may be so shortened as to remove danger of fatal injury, disfiguring sores and scars will be produced. Something in the form of the "Brinkerhoff Improved," with sides so inclined as to prevent catching and tearing, and so short as not to produce deep incisions when struck squarely, will need to be provided. We understand that the kind referred to is not yet in the market. Whether it is or not, the field is open to inventors and manufacturers, and the public want must be and will be soon met. Hundreds of thousands of land owners, both farms and village plots—all over the country, and especially at the west and southwest—are desirous of changing from wooden to cheaper, more durable metal fencing, and iron posts are included in the demand—those good enough, simple enough, and cheap enough for general farm fences.

BARE PASTURES IN AUTUMN.

Why should meadows and pastures be brown and bare late in summer and in the autumn? Lawns can be kept green, and grass plots for late soiling may be made to yield a good cutting in October, "brown October," as it has been called. The reason is that we deal more liberally with our lawns and soiling plots; it is not that we do not cut them close, for no grass land is cut closer than a well-kept lawn. It is not the climate either which we have been so ready to blame for our brown and dry fields, but something in our management. The fact is, we do not give our grass lands a chance to do the best they can. As we write we look out upon a grass field which has been cut the third time, but which has been top-dressed after the first cutting; and another beside it which has been pastured since it was cut in June. The former is in complete verdure, and the ground is thickly covered; the latter is a miserable exhibition of bare brown spots, interspersed with masses of rag-weed, left uneaten by the cows; a fair representative of the majority of meadows and pastures. When we have learned that it is possible to make more profit from an acre of grass than from an acre of any other crop we shall do justice to it and treat our meadows liberally. Just now it is very important to consider what this treatment shall be. A coarse, tufty growth should not be left on the surface, which dies but does not rot, and is in the way of the mower next season; but this cannot now be removed by pasturing which would only leave it in patches, nor by mowing, which would only leave it in patches, nor by mowing, which would be a costly way of getting rid of it, unless it is considered that the advantage would over-ride the expense. Perhaps to mow over such a surface, leave the cuttings on the ground as a mulch and a fertilizer, might be a cheap way of disposing of it. But the most helpful thing to do is to give a fair top-dressing of manure, fine and well rotted, before the winter. This will be well washed into the soil to nourish the roots, so that an early and rapid growth will be made in the spring, after a smoothing harrow has been run over the surface to break up any lumps that may remain. This early growth is the greatest advantage, because the crop being cut before the usual dry weather occurs, a second growth begins immediately, and is ready to cut very soon after the usual first cutting would have been made under other circumstances. During the hot, dry season, the soil is well shaded and protected, and the roots are uninjured, and when the second crop has been gathered a third gets under way at once. This exacting treatment of course requires liberal return, and in this case the "liberal soul shall be made fat." In fact, niggardliness in the treatment of the soil is the worst economy; while liberality is returned many fold. This is especially true with regard to grass lands, which in America, on the average, can pasture one steer or cow, only upon seven acres; while in England pastures that will fatten one bullock per acre are common.

The want of manure with which we should be so liberal is the great difficulty. But this may be managed by devoting one special compost heap for this purpose, and enriching this with the addition of bone dust, potash salts, gypsum, or phosphate of lime and wood ashes. If this is prepared in time for use in the fall, and a light dressing of nitrate of soda and gypsum or grass fertilizer is given after the first cutting there can be little doubt that the brown appearance of the fields will be changed to verdure, and the barns filled with a largely increased product.—*American Agriculturist.*

A NEW IDEA OF HEDGE CULTURE.

In one of our exchanges we see it stated that the Illinois farmers have discovered a new principle of hedge culture. They need to have discovered something; for, if reports of those who have traveled in the West are worth anything, a good Osage orange hedge is one of the rarest of sights, and this though the Osage orange has been grown for hedges by the hundreds of millions during the past forty years.

The new idea is in regard to trimming. It has been the doctrine to cut and slash on all occasions. The young plant has scarcely made a growth before it is cut back to thicken it; and as soon as it sprouts again it is again cut, and so on is it through life. But with all this cutting back to thicken, it would get naked below; and then after all this it had to be "plashed," as it is called, to make that thick below which the previous trimming has failed to do. This plashing is to cut the stem half-way through near the ground and then push the plant over; the next plant treated in the same way, and pushed over the one already laid down, and so on till the whole hedge is done, leaving each plant lying on the other, like furrow slices in a plowed field. But this has not resulted satisfactorily. It is found that the continuous trimming has weakened the plant's hold on life. Many of the heads die, and the mass of dead stuff as it disappears leaves a hole, which is not a hedge, or anything that was designed to be.

So they have now discovered something new; and the novelty is to let the plant grow as it will for three or four years and then "plash" it. They find that the uncut and untrimmed plant is healthier and stronger every way than the plant cut and slashed about in the old way; and from the base below the half-cut part, a mass of strong shoots put up and make their way between the layered heads in a way never dreamed of under the old plan.

But the interest for us in Pennsylvania is that it is not a new plan left to the inventive genius of Illinois to find, but only a Pennsylvania idea, alluded to frequently in the reports of our fruit-growers' and horticultural meetings and noticed on several occasions in these columns. We have given it as our opinion that though Pennsylvania has never made much talk about live hedges, as she yet has trees for timber-fencing in abundance, she has more good Osage orange hedges than the whole State of Illinois, and we suppose this is because the principle of good hedge culture is better understood. Lancaster, Chester and Columbia counties are full of good hedges, which it would do our Western friends good to see.

The Illinois farmers, though we cannot give them credit for priority of the discovery, will, however, find that they have hit on a good plan in letting their young plants grow, as they will for a few years, before allowing the trimming hook to touch them; but they will have to go farther than this, and abandon the plashing system altogether before they will have a real good hedge that it would delight the heart of a good man to see. Instead of cutting half through, our progressive hedgers cut entirely off, close to the ground, and the mass of thick, strong, vigorous shoots that push out are moulded into form, and

make a good hedge the same year. As already said, the half dead-alive shoots of the laid down part in the plashed hedge generally die in time; but beside this the young growth which pushes up from below the place of bending has to push through the mass of bent branches and are weakened in the struggle.

Besides all this there is the great beauty of a hedge on this plan over the plashed one. If we let the plants grow three or four years before they are plashed they are large, wide and without form, and when bent down make a thick, ungainly mass, occupying ground without use or beauty; but when the strong plants are clean cut away, the new growth has every opportunity to develop itself healthfully, and can be kept within any reasonable bounds.—*Germantown Telegraph.*

ORCHARD PRODUCTS.

We find in print a statement which is apparently reliable, that the orchard products of the United States have a market value annually of $16,000,000. These are chiefly apples, which crop has become a regular export to foreign countries, and is highly esteemed and in great demand in Europe. It is the only one of our orchard products that has thus risen to the highest level commercially, and the trade is a permanent one, and likely to increase in proportion to the progress of the production. The orchards of the Northern States have for many years past received a great deal of attention both from practical and scientific farmers and horticulturists, and the results are seen in the excellence of the food-crops, and more especially in the magnitude of the American apple trade. It is only within a few years past that our trunk line railroad companies have deemed it advisable to cultivate this trade, in the same way as they have done the commerce in breadstuffs, cattle, fresh meat and provisions, by multiplying facilities for warehousing and shipment at Boston, New York, Philadelphia and Baltimore. In proportion as these facilities have been augmented and multiplied, the production of apples in the Northern and Western States has become more extensive and profitable, thus aiding materially in the diversification of our agriculture. American apples are highly appreciated in England, and always meet with a regular demand from the leading British markets.

THE SILK WORM.

About thirteen hundred and fifty years ago two Nestorian monks, armed with formidable-looking canes, were traveling from India to Byzantium. Sent to the East by the Patriarch of Persia, whither they had fled after the Nestorian persecution, they were not so zealous in the propagation of Christianity that they failed to perceive certain features in the arts and sciences in which the heathen were far superior to the Christians. They determined to learn as well as to teach. They were especially interested in finding the secret of a certain fabric of surprising lustre and beauty, familar to Europe at that time as one of the most mysterious products of the East, and so highly valued that a pound of it was worth a pound of gold. Their efforts were successful. They hastened to Byzantium. They sought an audience with the Emperor Justinian, who was, no doubt, a little surprised when he learned that this beautiful and coveted product was originally the work of a worm. Up to this time, the middle of the sixth century, the common opinion in Europe was, that like cotton, it was wholly a vegetable product. He was further informed that though the worms themselves could not be brought to Byzantium, it would be easy to bring their eggs, the worms from which, when hatched, and fed on mulberry leaves, would spin their silken fibre for his subjects, and render importation from the hated Persians unnecessary. Stimulated by the large rewards which the emperor offered, the monks went back to India. The exportation of eggs was forbidden under penalty of death. But the shrewd missionaries made two large and hollow canes, which they filled with the eggs, and by this ingenious device succeeded in conveying them in good condition to the emperor.

This is the earliest and commonly received tradition of the introduction of silk culture into Europe. Yet the looms of Asia had been working for many centuries before these enterprising monks plodded into Europe with those hollow and oviparous mockeries.

M. de Boissiere, who is heroically trying to introduce silk culture into Kansas, tells us that one acre of ground will answer for 160 trained mulberry trees, each of which, four years from planting, will average ten to twelve pounds of leaves, making 1,600 to 1,800 pounds to the acre, or enough to feed from thirty to forty thousand worms, which should produce from thirty to forty thousand cocoons. The price of a pound of cocoons he places at from eighty cents to a dollar, making the value range from eighty dollars to one hundred and forty dollars.—*Atlantic Monthly.*

HARVESTING AND STORING TURNIPS.

Various methods for harvesting this crop, which in Pennsylvania is not a very extensive one, are now on the *tapis*. We speak of turnips, proper—not rutabagas. The last improved method is to *harrow* the crop out and load them with a *three-pronged hay-fork!* This may be rather expeditious and answer well enough where the turnips are to be fed to the cattle, but is the worst possible way if they are to be marketed, as purchasers will not look at a cut and bruised article. It will be found, "we guess," that the old-fashioned way of pulling them out with the hands and throwing them in heaps, and cutting the tops off with a sharp knife, will prove the best after all. It is useless to attempt to shirk the labor, if the crop is to be harvested in the best manner, and a good price is expected to be obtained for them.

Of all the roots perhaps the turnip is the most impatient of heat. It starts to grow on the slightest provocation. In a cellar of not over forty degrees, one may find it growing freely, after an incarceration of but a few weeks. It is growth which is the great enemy of preservation, and it is heat which excites growth. There is a natural heat in roots when put in a heap—a little heat from one root and a little more from another soon makes a pretty high degree; but in the open field this is carried off by the open air about the pile. Hence, under cover of near protection, this natural heat is not carried off. It accumulates, the roots sprout, thus gives off more heat, and it all soon becomes a regular turnip stew. The turnip, indeed, does not mind a little frost. If they were put in small lots in stalls, where the frost could get at them, and covered with straw to prevent rapid thawing, they would keep better than if covered with earth, which rather serves, as we have seen, to collect the heat and *boil the roots.*

As to how best to keep turnips, that will, of course, depend on each person's conveniences. But if each one keeps in view the fact that heat is more likely to injure them than cold—and a very low degree at that—he will steadily find out when he looks about what is the best way for him to preserve them.—*Germantown Telegraph.*

SMALL POTATOES.

A correspondent of a leading publication writes that he made an experiment the past season which he thinks fully explodes the theory that small seed potatoes will only return a small crop of small potatoes. Any theory of that kind was exploded we suppose before the writer was born, and the whole letter is an admirable illustration of a class who are continually fancying they are exploding when there is really nothing to explode.

Still there is some misapprehension as to this small potato seed business, and it may be worth while to set it right. It is not the size of the potato, but the vigor and strength of the eyes on the potato, that makes up the case. These are often as large on a potato of moderate size as on a very large one. If the eyes are of the same strength of equal vigor it is the same as if they were all cut from the same tuber. A strong eye starts to grow and almost immediately sends out roots of its own, and has no farther dependence on the old piece. It gets its food wholly from the earth. If it is a weak, puny sprout, of course it takes a whole season to get strong, and in the meantime can only send out very weak threads that must be able to form nothing but very small potatoes.

If there is a question of the potato's size, and not of the strength of the eyes in the potato, the correspondent would not even yet have "exploded" the theory. Let him plant real small potatoes potatoes about the size of beans—potatoes with small weak eyes, and then he will find that small potatoes are small potatoes, first, last and all the time, and no mistake. His crop will be in proportion to the size of the seed used.

Aside from this, however, it is wholly a question of the strength of the eyes, and these are likely to be quite as good on average-sized tubers, such as are generally known as seed potatoes, as on larger ones. It is from a want of a recognition of this fact that makes so much barren discussion as to the proper size of sets to plant.

CINCINNATI'S CONSUMPTION OF BEER.

The Cincinnati *Gazette*, in a recent issue says: "The following information is from advance sheets of the annual report to the Chamber of Commerce of Sidney D. Maxwell, Superintendent:

"The past year has brought the largest production in malt liquors that has ever been witnessed in this locality. The aggregate having reached in this city alone 655,520 barrels, compared with 558,709 in 1878-9, 550,518 in 1877-8, 475,212 in 1876-7, 476,228 in 1875-6, 452,177 in 1874-5, 465,886 in 1873-4, and 467,790 in 1872-3. The cities of Covington and Newport produced in the last year 52,800 barrels, compared with 47,710 in 1878-9, 44,470 in 1877-8, 38,204 in 1876-7, and 40,586 in 1875-6. Three cities produced in the late year in the aggregate, 708,320 barrels, or 21,957,920 gallons in comparison with 606,449 barrels or 18,799,919 gallons in 1878-9, and 594,988 barrels or 18,414,261 gallons in 1877-8, an increase in the past year over 1878-9, of 101,871 barrels or 3,158,001 gallons.

"The year, in some respects, has been an unsatisfactory one to brewers, and therein has been unlike the preceding season. Barley has been here in liberal quantities, and at satisfactory prices, but hops and ice have both been high, and labor has averaged about 10 per cent. more than in 1878-79. Added to this has been much irregularity in prices, and while the price for lager beer has been nominally maintained at $8 per barrel, in many instances sales have been made at lower rates, much having found a market under the tremendous competition at $6 per barrel. An effort was made in the spring to advance prices to $9, but it was ineffectual. The demand, at the prices, never has been so great in the history of the trade here, all the breweries having been running to their full capacity. It is believed by intelligent observers that, with a much larger capacity, all would have found the most active employment. That under such circumstances there should have been great irregularity in prices and unsatisfactory business, is somewhat anomalous. The condition was probably traceable more to a healthy understanding between producers than to any other, or all other, causes combined.

These figures show an important increase measured by considerable periods in the growth of the business in this city. In six years the production here has increased over 44 per cent. The increase over the year immediately preceding was 96,810 barrels, or about 17 per cent. The increase in the latter period is traceable to some extent to an en-

largement of the arena of distribution, especially in the South, where, through the agency of the Cincinnati Southern Railway, a new demand has sought supply. The increased demand for local consumption has had, however, no little to do in the important growth of the business. It is not possible to arrive at the actual quantity consumed in this city and its immediate vicinity, but the records of the Merchants' Exchange show, after deducting from the production the shipments from the city, which for the year amounted to 200,887 barrels, exclusive of such beer as went out in bottles, which would find ample compensation in the beer received from manufacturers elsewhere, the sum of 507,433 barrels remaining for the consumption of residents and visitors, which according to the usual allowance, would swell the consumption to the amazing aggregate of the equivalent of 202,973,200 glasses of the usual size. In the production of malt liquors there were consumed in the three cities in the past year, approximately, 1,722,180 bushels of malt, 1,398,896 pounds of hops, and 55,000,000 tons of ice, the last named averaging, approximately, to $5.50 per ton. The figures as to the consumption of malt and hops are from actual returns make to the Revenue Department, allowing for Covington and Newport the average exhibited by the returns made for Cincinnati.

"The increase in the outward movement of beer, embracing all kinds of malt liquors, exclusive of such as was transported in bottles, has been 38,294 barrels, or about 23 per cent., while, since the year immediately preceding the rebellion, the shipments have grown from 22,581 barrels to 200,887 barrels, exhibiting since the census of 1860 the enormous increase of 789 per cent."

MICE AND RATS GNAWING TREES.

Every winter the agricultural journals contain inquiries as to a remedy to prevent mice and rabbits gnawing trees, and we have nearly annually answered them. Our remedy, which we have tried with success, has proved effectual in every instance in which it has been properly applied. It is to bandage the trees with any old cotton or woolen cloth, or very stiff paper will do. For mice, eight or ten inches high will answer; for rabbits, not less than two feet. The latter standing upright can reach up nearly two feet, and as far as they can reach they will gnaw. The same cloth, if put away, will last for several years. Of course the bandaging must be well done and tied to the trees securely.

In gardens, where rabbits are sure to be found if there are any in the vicinity, a good protection is to feed them with cabbage stalks, or decayed heads of cabbage, offals of rutabagas, carrots, hay, &c. A "dead trap," baited with apple, will also soon clear a garden; but, if in a starving condition, a half dozen rabbits will destroy fifty young trees in a single night. One winter they not only injured several young pear trees for us, but nipped off the tender ends of certain shrubs as cleanly as if done with pruning shears.—*Germantown Telegraph.*

FALL TURNING-UP OF GARDEN SOIL.

Professed gardeners well understand the fall management of these important little family farms. It is needless to tell them how much the success of next year's crops depends upon turning up the ground (say in November) intended for such crops. But there are many others—those who have small gardens—and in this class are many of our regular well-to-do farmers—who only raise half crops of vegetables, and these of an inferior quality, and wondered how it is so. Now, we cannot too often repeat the advice that if they will use the garden-fork, and turn the soil up full fork deep, allowing it to remain in lumps all winter exposed to the frost, it will put the soil in excellent condition and tend greatly to add to the production of next year's crops. This is especially the case with ground not so treated frequently, and we would mention that every other year is best, instead of every year as some gardeners do. Gardens, and especially old ones, should also be *limed* about once in five years, and *salted* about every other spring, applying of lime at the rate of about thirty bushels to the acre, and of salt from eight to ten. In applying salt keep it from coming in contact with box-edging and all other evergreens, very small trees, &c. Such a course will bring up your old gardens in a surprising manner. Turnips, radishes, &c., will grow as well as they ever did, and all other vegetables be largely benefitted.—*Germantown Telegraph.*

A MEXICAN MARKET.

The market furnishes an abundance of eggs, chickens, cheese and milk. Fish can most always be had, being brought from the Santiago River, twenty miles distant. A nice chicken can be bought for a real and a medio (18¾ cents,) and a dozen of eggs for the same. The cheese mostly used is called panda, and comes in the form of small cakes, is white and soft, and eaten when freshly made. Milk is brought into town on the backs of animals, and is plenty and cheap. There is a belief that it is dangerous to drink it in any quantity and clear; that, if a glass of it be drank, and the person becomes excited or angry, the chemical affinities of the milk and blood are such that a poison is produced that creates immediate death. Flour sells for 12 cents per pound. The amount used is considerable, notwithstanding that tortillas, or corn cakes, are a necessity in every family. The bread and cakes are all furnished by the baker. The bread is made in the form of rolls, which are sold at 4 cents each. Of the sweet bread, there is a great variety, and each family in purchasing procures the assortment. It is made into small cakes of different shapes, and sold at from 1 to 3 cents each.

The entire ignorance of the value and use of stoves of course necessitates a simplicity in the art of cooking; and the excellence of the production of the cocinera is very remarkable, when this is considered. There is not a stove in use in Tepic. The original, antique furnace, that has been in use from the time of the Spaniards is still cherished as superior to any modern innovation. It is simply of brick, of convenient height, with an opening on top to contain charcoal, which is the only fuel used, and on top of which the cooking utensil is placed. An opening underneath furnishes draft. All the cooking utensils are made by the Indians from clay. They are all glazed; some ornamented with colors and are cheap but frail. They are of all sizes, from a spoonful up to ten gallons. They are brought into the towns on the backs of Indians and donkeys, packed in crates, and are offered for sale about the Plaza on Sunday. This is an important industry, as all families must use more or less and the constant breakage creating a continual demand.—*Alta-California.*

VENTILATION.

A gentlemen, while attending church one evening, found that his feet were icy cold, so that he had to raise them off the floor. Calling the attention of the sexton to the fact, the latter said, with some perplexity, "Yes, we have a good many complaints of cold feet from others; but I don't understand the reason why we can't keep the church warm—we surely have fires enough." So saying, he pointed to a register in the aisle behind the gentleman in the adjoining pew. Looking around the latter could see that there was a hot fire in the furnace beneath, and yet no heat came up. When a handkerchief was laid over the resister it scarcely stirred. The visitor asked the sexton, "Have you any means of ventilation?" "No, sir." "Are there no windows open?" "None whatever." "How, then, can you expect the air to come in here if it can't get out somewhere?" There was no response—the man was nonplused. "Did you ever try to blow into a bottle?" continued the inquirer. "No, sir." "Do you think, if you did, that you could force out any more air from a bottle by blowing than was in it before?" He couldn't say. Never had thought of it. "Well," continued the gentleman, "you would soon find, if you tried, that it was impossible, and neither can you force air into this church through a register if you don't open a window or some other orifice. "But," the sexton demurred, "opening a window would let in the cold air, wouldn't it?" "You just try it," was the response. "Raise some of the windows on the leeward side of the church, and see what will happen." It was done, and instantly the handkerchief lying on the register rose half-way to the ceiling with the force of the ascending current. The sexton stared in astonishment.

A GREAT OAK.

In the old Friends' burying-ground on the principal street of the city of Salem, New Jersey, stands a magnificent white oak, which looks as if it had a millennium of vigorous life in it yet, although it must have been a tree of majestic proportions when John Fenwick landed there one fine October day two hundred and five years ago and founded the first town on the east bank of the Delaware. The Salem oak is not so remarkable for the size of its trunk, which is scarcely more than twenty feet in circumference at six feet from the ground, as it is for its amplitude of shade. In one direction its branches have a spread of 112 feet, and in the direction at right angles to its greatest diameter its branches extend more than 100 feet. At about 15 feet from the ground the trunk swells into a great mass, and then diverges into at least twenty main branches, each of which would make a large tree. Taken altogether in altitude, volume and expression, it is one of the grandest specimens of its kind to be seen in this country. It seems quite natural that the placid and substantial old Quaker town, whose very name signifies Peace, should have slowly gathered about the great tree with its "tranquil aspect of venerable continuance through centuries," and it was almost a necessity that the reverent pride and good taste of the Salem people should have led them to select a likeness of the oak for the device upon the City Seal.

AMERICAN AND ITALIAN SUMAC.

The quantity of native sumac, says *The Scientific American*, brought into the market does not exceed 8,000 tons yearly, and its market price is only $50 per ton, just half the price of the Italian product. This difference in value is due to the fact that the American sumac, as at present prepared, is not suitable for making the finer white leathers used for gloves and fancy shoes, owing to its giving a disagreeable yellow or dirty color. It has recently been shown, however, that the leaves of native sumac, gathered in June and July, are equal to the best foreign leaves. The importance of this discovery may be seen by the fact that the cultivation of the plant may be carried on most profitably in this country as soon as manufacturers and dealers recognize the improvement thus obtained in the domestic article, and by classifying it according to its percentage of tannic acid and its relative freedom from coloring matter, advance the price of that which is early picked and carefully treated.

In Italy the sumac is planted in shoots in the spring in rows, and is cultivated in the same way and to about the same extent as corn. It gives a crop the second year after setting out, and regularly thereafter. The sumac gathered in this country is taken mostly from wild plants growing on waste land, but there is no reason why it should not be utilized and cultivated on land not valuable for other crops.

ALSIKE clover gives smaller crops than red clover, but of better quality. It is especially recommended for soils liable to heaving by frost, and affords excellent pasture for bees.

Our Local Organizations.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The Lancaster County Agricultural and Horticultural Society met statedly on Monday afternoon, November 8th, in their room over the City Hall.

The following members and visitors were present: J. F. Witmer, Paradise; M. D. Kendig, Creswell; Calvin Cooper, Bird-in-Hand; S. P. Eby, city; F. R. Diffenderfer, city; W. W. Griest, city; C. A. Gast, city; H. M. Engle, Marietta; Dr. C. A. Greene, city; C. F. Hunsecker, Manheim; I. L. Landis, city; Daniel Smeych, city; J. Hershey, Rohrerstown.

On motion the minutes of the preceding meeting were not read.

Dr. Greene, from the committee appointed to procure certificates of merit, reported that they had attended to their labors and the certificates were before the society. On motion the report was received and the committee discharged.

Mr. Kendig reported the wheat crop in Manor township to look fine; the corn crop is a large one. There would be a great quantity of cattle fed in his section. The rainfall for the month of October was 1 3-10 inches. The farmers are beginning to take down their tobacco; some of the farmers claim that the fleas are doing the crops damage in the houses.

Mr. Engle said the corn crop in his section was not a large one. Winter wheat looks much better than it did a few weeks ago. Grass has been pastured down very close, in consequence of the shortness of the fodder crop. The rainfall was 2 1-16 inches. The apple crop is small, the dry season having caused the crop to drop prematurely.

Mr. Hershey said the grain looked well in Hempfield township, there would be about an average crop of corn. Some of the tobacco has been taken down. In reference to the fleas there was no doubt that they worked in the sheds. The people had commenced stripping, and he found that there was a good bit of it more or less damaged. There was a fair crop of apples in his section.

Mr. Landis said that in Manheim township there was a full crop of corn. The same could be said of wheat, oats and potatoes. The tobacco crop was being damaged by the flea. Some patches, however, had been unmolested. The young grass fields look promising.

Mr. C. L. Hunsecker read the following essay on "Weeds:"

I have been led to this subject by the remark of one of our agricultural journals stating that our farming is so defective that we annually raise 8,000,000 tons of worthless weeds! Now, I think it a very difficult matter to arrive at a fair estimate of the amount of worthless plants that spontaneously grow in our fields, and the figures above are truly enormous if true. But, then what is a weed? Richardson says it is a plant that is useless, or troublesome; underbush, low shrubs, or anything useless. Webster says, *the word weed has no definite application to any particular plant or species of plants*; whatever plants grow among corn or grass, in hedges or elsewhere, and which are of no use to man, injurious to crops, or unsightly or out of place, are denominated weeds. According to these definitions from eminent authors it is really a matter of doubt what constitutes an entirely useless weed. We will suppose, however, that any plant that grows in corn fields, in gardens, other than the farmer and gardener plants for a crop, are useless weeds in those places, and hinder and choke those they cultivate for profit.

In a very poor soil few weeds spring up, no matter how well or ill the land is tilled; in a rich, well-manured soil it is entirely the other way. Weeds, if left to have their way, will spring up with a rank luxuriance truly amazing; "too much manuring filled that field with weeds" is a fact of daily observation.

The destruction of all extraneous plants, but those grown for a crop, is in thorough tillage. To raise a field of corn to perfection requires constant work to keep the weeds down. It is said that at one of the large nurseries at Rochester, New York, the tillage of this ground is so thorough and complete that it is a great rarity to see a weed.

Dr. Greene said the subject was a good one, and one to which a great deal of thought had been given. It was a singular fact that, as the weeds only grow on the richest soil, it appeared that God intended that man should work in order to clear his land of them, and not to earn his bread in idleness. He spoke of the manner in which the seeds of the thistle were spread over the land, and said if the farmers would only pull them out by the roots before they were more than half-grown, it would be an easy matter to rid the soil of them. The land which has the less number of weeds certainly will produce the largest crops.

"Should the farmers of Lancaster county produce their own sugar?" The question had been referred to Mr. Engle, who said this question could only be answered in the affirmative. He believed the time would soon come when the people of this county would not be compelled to go away from home for this article. The sugar beet, he believed, would play an important part in the making of sugar. There was any quantity of land in this county that would produce good sugar making beets. He did not know why this beet should not be cultivated in large quantities. The pummice makes also very good food for cattle.

Mr. Eby had learned that even the sorghum would make good sugar if it could have been properly refined when it was grown in this county.

Mr. Diffenderffer thought the great trouble was that the sorghum had always been ground either too green or too ripe. A single firm in the west last year made 40,000 pounds of fine sugar from it.

Dr. C. A. Greene said that since his name had been mentioned prominently in connection with a fair next year, he had been approached by a number of citizens, who promised, if the fair would be made a representation of the industrial interests of the county, to raise a nucleus of $5,000.

Mr. Engle said there was no county in the State that had so many of the best farmers who would not patronize a fair or the society on account of religious reasons. This has always been one of the principal drawbacks to the success of the society or its fairs.

Mr. Witmer said the attendance at the meetings was becoming smaller every month. He thought it would be a good plain, inasmuch as a number of the members had been in office for a number of years, to make a new deal and put new men into office, and thereby awaken them to an interest in the society.

Dr. Greene thought it would be a good plan to induce men from outside the county to come and lecture before the society on the subject of agriculture, and invite all the farmers to be present.

Mr. Engle and Mr. Cooper also spoke in favor of Dr. Greene's suggestion, and said the idea should be encouraged.

On motion of Dr. Greene a committee was appointed to correspond with Mr. W. A. Burpee, of Philadelphia, and invite him to deliver a lecture before the society at its next meeting. The President appointed Dr. Greene and Mr. F. R. Diffenderffer on the committee, who were empowered to pay the expenses of the lecturer.

Mr. Cooper said he had presented the bill of the county in reference to the bounty for the years 1878 and 1879. The Commissioners had paid $100 for 1879, but said they would hold that of 1878 under advisement.

On motion of Dr. Greene a vote of thanks was tendered Messrs. Cooper and S. P. Eby, Esq., for their efforts to secure the money.

The following questions were referred for next meeting: "Can the dairy and tobacco growing be successfully carried on on the same farm?" Referred to C. L. Hunsecker.

POULTRY ASSOCIATION.

The regular monthly meeting of the Lancaster County Poultry Association was held on Monday morning, November 8th, in their rooms in City Hall. The meeting was called to order by President Wartel. The following members answered to their names:

S. N. Warfel, Strasburg; J. B. Lichty, city; Chas. E. Long, city; J. B. Garman, Mechanicsburg; F. R. Diffenderffer, city; H. H. Tshudy, Lititz; Frank Gerist, city; T. F. Evans, Lititz; W. A. Shoenberger, city.

The reading of the minutes of the previous meeting was dispensed with.

The Secretary read a letter from Mr. Jessee Root, of Philadelphia, promising to have on exhibition three pairs of pheasants, which will no doubt prove a source of much attraction.

He also reported that in compliance with instructions from the Society he purchased 160 coops for Bantams for $62. The coops are here.

Letters from various persons offering special premiums for certain classes of birds were also read.

On motion of Charles E. Long, the Secretary was authorized to notify such members as he thought likely to attend of the times of meeting.

The Secretary reported a good many members as not having paid their dues. He proposed that they be notified that all such, by paying the initiation fee of $1, will be regarded as having paid their dues for 1881, as well as for the present year.

It having been found impossible to secure the rooms in which the poultry exhibition was held last year, the Executive Committee was instructed to secure rooms elsewhere.

On motion, the Secretary was instructed to correspond with two judges, one of whom is to be W. F. Rogers, of Doylestown, Pa., to act as judges of the poultry and pigeons on exhibition at the coming show.

On motion, I. B. Garman, of Leacock, was elected to membership.

On motion of Charles E. Long, the Secretary was authorized to have postal cards printed inviting poultrymen in the county and elsewhere to send exhibits to the coming show.

A session of the Executive Committee was held at which various matters relative to the catalogue and other important matters were brought up and discussed.

FULTON FARMERS' CLUB.

The October meeting of the club was held at the residence of E. Henry Haines, Fulton township. Nearly all the members were present.

Joseph R. Blackburn exhibited two ears of the Cloud corn, which took the premium at the Pennsylvania State Fair last year.

Wm. King, a large apple for name and Stowell's Evergreen corn.

The apple was thought by some to be the King of Tompkins county.

E. H. Haines, a Persian watermelon and some apples from his orchard, to show that the apples that he had been growing, for the King of Tompkins county, were different from the one exhibited by Wm. King.

Questions Asked and Answered.

S. L. Gregg: How does the jointer work on a Wiley plow?

Most of those who had tried them gave a good report of them.

Josiah Brown: Is it a good practice to put wheat in after corn?

The general opinion of the club was that if well put in it would pay better than oats, but with several it had been a failure.

F. Tollinger: Is it injurious to the wheat crop to plow ground when very dry?

S. L. Gregg believes that in general wheat will do better when the ground is wet enough to plow well, although he knew of an instance when wheat did better in ground that was plowed when too dry than that in a part of the same field that was plowed when the ground was in good order.

Josiah Brown: It is better to plow when the ground is in good order. Had not seen any good wheat lately when the ground was plowed very dry.

Montillion Brown: Had known fields that did well when plowed dry, but would not plow dry himself if he could help it.

Joseph R. Blackburn: Which is doing the most good for farmers, lime or other commercial fertilizers?

Solomon L. Gregg said that until within a few years lime was the only fertilizer used, except barnyard manure, and it had formerly improved the ground very much. But of late years it had ceased to act for him. South Carolina Rock and some other fertilizers were doing decidedly better for him. The Rock, especially, had done well.

Josiah Brown said that lime used to act well for him, but he could not see that the last he had put on did any good. Can raise better crops with South Carolina Rock, or bone.

E. H. Haines had got a good bit out of heart about lime. But lately he had got some lime from up the river and put it on soil; had plowed it last spring for Hungarian grass. Where the lime was put the grass was better and of a different color.

Joseph Griest uses stable manure obtained in Philadelphia. Had a fine field of corn that had been limed two years ago at the rate of 75 bushels per acre. Some other fertilizers that he had tried were not satisfactory.

F. Tollinger: In this immediate neighborhood lime does first-rate. Other fertilizers are unsatisfactory.

M. Brown said that on his farm lime does not do so well as formerly. Bone does not do much good. South Carolina Rock does middling well.

Grace A. King: Are acorns good feed for hogs?

Josiah Brown: Hogs thrive on them and get fat, but the meat is not so firm as those grain-fed ones. Had a lot of hogs several years ago that got fat on them without grain. They would leave corn and go to the woods for acorns.

Joseph R. Blackburn: It is said that commercial fertilizers contain all the elements of hay and grain. Would it pay to purchase them and sell all the farm products instead of feeding them to animals to make manure?

Solomon L. Gregg: Does not feed much of his farm products. He sells his hay and straw and buys fertilizers, and thinks he makes money by the operation. Straw had better be sold even at so low a price as four dollars per ton if fertilizers were purchased with the proceeds, than to retain it on the farm for the purpose of converting it into manure.

Josiah Brown would not sell hay or straw at a very low price. Does not think that a farm could be kept up very long without them.

Montillion Brown thinks that Solomon will have to change his plans in a few years. Truckers find that they have to change their fertilizers every few years. Even barnyard manure will not give satisfaction if used continuously.

Afternoon Session.

After the members had made a few remarks, mostly of a favorable character, on the farm management, the club proceeded with its literary exercises.

E. H. Haines read an article from the *American Agriculturist* on "Planting trees in autumn," giving some reasons why it is preferable to the spring. It is a time that out-door life is most enjoyable, and out-door work seems to tell better than any other.

The soil has not lost all the warmth that it has been accumulating through the summer, and to plant in it is like giving the trees a bottom heat.

Carrie Blackburn recited a poem entitled "Labor."

Belle H. Mooney recited an article in prose by Dickinson, entitled "The Benefits of Agriculture."

Sadie Brown read a letter from "The Old Man." He had seen by the club reports in the Oxford *Press* that "The Old Woman" had been writing to the club again, and that she took issue with the general idea that women were mostly mad on wash days, saying that it was not anger but earnestness. Well, if the club could have seen her when she burned her fingers on the hot apple sauce he would leave it to them to judge whether she was mad or not.

When he was reading the club report to her and came to the recipe for making chow chow, she exclaimed, "Good gracious, that's something to cure the hollow horn, ain't it?" If it was for human flesh it might be good for the toothache, or to make a poultice. She would like the club in its next report to tell what kind of medicine it was, and how much was to be taken at a dose.

He had heard that the club was going to discuss the fitness of women for school directors. He would tell us that it would never do. They would never get through with the business. Besides, they would have to be driven to the place of meeting, and the men who drove them would have to lounge about or indulge in neighboring gossip during the sessions of the board. The women would soon begin to strive for office and neglect the children and let them go ragged to school, and we would soon relapse into barbarism.

Mabel Greist read an essay that had been handed to her advocating the propriety of electing women to the office of school director, from the standpoint of the equal rights of thes exes.

After some further discussion of the subject by the members, which showed that some of the women were opposed to it, the club adjourned to meet at the residence of Grace A. King, Fulton towhship, on the first Saturday in November.

LINNÆAN SOCIETY.

The Society met on Saturday afternoon at 2 o'clock, October 30th, in the ante-room of the museum, Prof. J. C. Stahr in the chair. Prof. J. H. Dubbs was appointed Secretary *pro tem.* Present, five members and four visitors. After the usual preliminares the following donations were made to the Museum and Library:

1. Two large fragments of a Steatite Indian pot or boiler, three Indian stone implements, found on the premises of Dr. Z. B. Williams, Sadsbury township, Lancaster county, and donated by Mr. C. E. Brinton, of Lancaster.

2. A rattlesnake skin, 4 feet 7 inches long and 8 inches in circumference. This snake is the *Crotalus durissus*, and was killed in Centre county, Pa., last summer, by Messrs. Stehman and McNaughton, and by them donated to the Society.

3. Three jars of reptiles, two bottles of insects and one bottle of spiders. Collected at Fort Keogh, Custer county, Montana, and donated by Mrs. Emma L. Martin, of that place.

4. A pair of moccasins made by the wife of "Flying Hawk," a noted Cheyenne chief, and also donated by Mrs. Martin. These articles are elaborately wrought, and almost entirely covered with beads.

5. A brown *Gordius*, or "hair-worm," over 12 inches long, taken from the body of a "Red-legged Grasshopper"—*Caloptenus femer rubrum*—donated by Mr. H. H. Stauffer, of Petersburg, Lancaster county. Mr. S. states that he found many of the "Hoppers," the past season, infested by hair-worms and "scarlet mites." He also observed that the insects infested by one were almost invariably infested by the other of these parasites. This is a corroboration of observations made by others on the same subject.

6. A fully-developed larva of the "Rabbit Gadfly," donated by Mr. Kelly, of the North Queen street grocery. Mr. K. says he found this worm located immediately under the skin near the articulation of one of the front legs. These worms are usually located in the dorsal portion of the neck of the rabbit during the summer and autumn months, and this subject was evidently making its exit from the body of its host, preparatory to its pupation in the earth. This is doubtless *Cuterebra curicula*, or "Rabbit Bot."

Library.

1. An alphabetical list of patents and inventions from January to June, 1880.

2. Nos. 13, 14, 15, 16 and 17, volume 18 of the official Patent Office *Gazette*.

3. A list of communications, disclaimers, decisions, &c., of the Patent Office from January to June, 1880.

4. The LANCASTER FARMER for October, 1880.

5. Three catalogues and four circulars relating to scientific and general literature.

6. Two envelopes containing twenty-five miscellaneous selections, chiefly historical and biographical.

The committee to whom was referred the tribute of respect to the late Dr. Haldemhn made the following report, which was unanimously adopted, and ordered to be recorded in the archives of the society.

Tribute of Respect.

The Linnæan society records with regret the death of its distinguished correspondent, Dr. S. S. Haldeman, late of Chiques, Lancaster county, and that he only sustained that relation to this society, and was not in full active membership, was entirely due to preoccupation in another field, and not to a want of interest in its progressive welfare. Dr. Haldeman was the chairman of the committee on natural science in the old Historical and Mechanical society, which subsequently culminated in the Linnæan society: but when that event occurred his engagements abroad precluded the possibility of his assuming active membership in it, and hence by mutual consent his name was placed in the list of its distinguished correspondents. Few of us have had any personal intercourse with him, but as a scientist we revere his name—a name that is dotted all over the scientific literature of America and Europe—especially in philology, ethnology, geology, zoology and archæology, and has made Locust Grove and Chiques Rock classic as the places of his birth and death. From his very boyhood he always was a dilligent and persevering worker in the various fields of practical science, and perhaps few men of his profound attainments made less pretension than he did; indeed, it was no part of his character to profess to be anything which he clearly was not, hence, during his whole life he never ceased to be an ardent and unrelaxing student. He had no loves outside of the domestic circle, save those which led to scientific research, and hence his domestic character was singularly unostentatious and pure. His literary fame extended far beyond the boundaries of his native county, within whose domain he was, perhaps, less known and less appreciated than he was abroad. No citizen of Lancaster county, from its first organization down to the present time, has heretofore received a greater recognition than he did from the learned institutions of the civilized world, and this fact reflects a compliment to the county, however it may be understood or appreciated.

Dr. Haldeman was not unmindful of the Linnæan society and on various occasions he has made generous donations to it; and that we were not more benefited by the influences of his intercourse, was perhaps due to our own want of working activity rather than to his want of working will. Still while he was living we felt an encircling influence which might bring us *en rapport* with him when occasion required; but now that he has passed from earth we feel that that circle has been broken, and therefore we cannot but regret the loss which we, in common with his family, his friends and the cause of science, have sustained by his unheralded departure.

The example of Dr. Haldeman, as an industrious student of the book of nature, was one certainly worthy of the imitation of young men who are imbued with a love for scientific investigation, for although he was the graduate of a college, yet his achievements were mainly due to his inexible perseverance, and his striking out into original and unexplored channels; and it could be said of him with especial emphasis, that he literally "died in harness."

We know, too, that his light was "never hidden under a bushel," and that he was always ready and willing to impart information upon such subjects as were familiar to him to any one who made a sincere application to him.

Feeling that it may be a long time before the vacuum caused by his death will be filled in the county which he adorned as a scientist and citizen, we place these sentiments on record as the sense of the Linnæan society in its relations to a distinguished and departed correspondent.

Bills reported and ordered to be paid.

After a prolonged "talk" under the rule of "Scientific Gossip," which was generally participated in, the society adjourned to meet on the last Saturday in November, (27th) 1880.

AGRICULTURE.

Fall Ploughing.

When land is ploughed in the fall and left till spring without harrowing, it may be sowed to any kind of spring grain after being well harrowed, and the crops in most cases will be as good as if the land were plowed in the spring. Stable dung, when plowed under in the fall for a spring crop, will be as beneficial as when ploughed under in the spring; but all kinds of common fertilizers should be sown broadcast in the spring and harrowed in, unless one sows seed with a drill that deposits and covers the fertilizers at the same time. If it were not for the great hurry that farmers are subject to in our short springs, it would not be of any advantage to plough light, loamy soils in the fall; but in consequence of not having time, in many cases, to plough in the spring all the land one desires to cultivate, it is decidedly advisable, in some cases, to plough in the fall, especially clayed soils, which are greatly benefitted by being thrown up by the action of the frosts of winter. It often occurs that a field in the spring is too wet to plough when the seed should go in, and such land, if ploughed in the fall, would be in good condition to harrow in the spring, and the crop would be better for the fall ploughing.

Uses of Manures.

"Investigation," says the last report from the agricultural department at Washington, "demonstrates the fact that farmers are learning the necessity of increasing the store of plantfood in the soil, of having it in an immediately available form, and of supplementing the deficiency with specific fertilizers." We think so, too, and that farmers are becoming better versed in the philosophy of fertilization, and better able to adapt their practice to the peculiarities of their soil and to their resources in material for fertilization, both by an increase in theoretical or scientific knowledge and in the experience gained in the application of such knowledge. Not all are thus intelligent; a large portion yet follow such methods only as have been handed down by their fathers, and which they have generally found to be successful, often without much regard to the different circumstances of soil and situation. And yet the average practice of these practical men is essentially sound, and really based on reason and science. And although it is true that half the counties in the United States are cultivated almost literally without the aid of any fertilizers at all, and a large portion with the casual aid of a green crop turned over, or of a little lime or plaster or cotton, or a "cowpenned" lot or two, or some trifling saving of barnyard manure, still we cannot but think it equally true that the practice of systematic fertilization is not only on the increase, but that it is accompanied with a better adaptation of means to ends, as well as greater economy in the choice of material.

The manure of farm animals is the main reliance for sustaining fertility. Indeed, show us the man in whose barnyard is manufactured the greatest quantity of manure and we will show you the best farmer. Commercial fertilizers are somewhat used in the North, especially in Maine and Massachusetts, and, together with lime and plaster, considerably used in the Middle States. The largest portions, however, are used in the South Atlantic States, from Maryland to Georgia, inclusive, and at a cost to each of many millions of dollars. But little fertilizing matter is applied to the soil from Alabama westward, with the single exception of such cotton seed as is not wanted for manufacturing into oil. In the eastern portion of the Ohio valley experiments are being tried with commercial fertilizers by a few progressive farmers, and the use of clover and plaster considerably practiced by immigrants from Maryland and Pennsylvania, and here we may stop. The remainder has heretofore practiced the draining of farm-yard manure into creeks and rivers, or in the removal of barns to get rid of the accumulations of the manure; or, if the latter has not been literally adopted, the farmers have not indicated much faith in the necessity of manuring. And yet the facts show that even in the West lands have been made to bear an increased production of from twenty to thirty per cent. by a single case of green manuring. Many examples are given of the renewal of apparently worn-out land in those sections by simply adopting a systematic course of manuring. Fields that have been cultivated exhaustively for twenty or thirty years have been restored to their original fertility, not by the use of guanos and superphosphates, but by utilizing the local resources of the farm, the cheapest and most reliable of which is clover. In one case in Butler county, Pennsylvania, a section of thin gravelly land, on which it was thought that no one could make a decent living, came into the possession of German immigrants at nominal rates. They cleared off the brush, plowed, cultivated, turned under green crops, saved every fertilizing material available, never duplicated a crop in five or six years' rotation, and that tract is now like a garden, and from comparative worthlessness has advanced to the value of $100 per acre, and is yearly becoming more productive. The owners in some cases have raised and educated families, lived comfortably, ride in carriages and have money at interest. They have evidently learned the necessity of increasing the store of plant food in the soil, and afford additional evidence that the practice of systematic fertilization is on the increase.

Agriculture Advancing.

It is somewhat consoling, amid all the degeneracy of the times, to find the condition of agriculture to be steadily advancing, and the productive power of the soil, both in this and the mother country, to be rapidly improving from what it was a few years ago. In England, where increasing population and high prices of land have forced high manuring and extra cultivation upon the tillers of the soil, this steady advance to us is something extraordinary. For instance, less than from 35 to 40 bushels of wheat per acre is not considered a good crop, and 50 and even 60 bushels are not at all remarkable. What

the crops were in the olden time, and something of what they are now, is told in an extract from the late revised edition of Appleton's American Cyclopedia, in the article entitled "Agriculture." It says:

"It is difficult to ascertain the amount of crops, or the average yield of very distant times past, but the average yield per acre of wheat in the eleventh century was estimated by the highest authority of that day—the author of 'Fleta'—at only six bushels. So 300 years later, in 1790, fifty seven acres on a farm at Hawsteady yielded only 366 bushels, and on an average of three years but little over that. The actual productive power of Great Britain in the article of wheat alone increased during the half century from 1801 to 1851 to such an extent as to support an additional population of seven millions—an increase which can only be ascribed to an improved system of farming. So in every country where agriculture receives the attention it deserves, the productive capacity of the soil has been largely increased. Even the Atlantic States of the Union, where the system of cultivating the soil without maintaining its fertility by proper treatment prevailed for many years, are not an exception, since it is well known that the condition of agriculture is rapidly improving even in those where this system of impairment was earliest begun, and the general average of crops, with the exception, perhaps, of the potato, is increasing from year to year, as a better system of cultivation is introduced and kept up—the farmer being led to improve his practice by the pressure of increasing population and constantly rising prices of land. In New England, for instance, the general average yield of Indian corn per acre has risen from 8 or 10 bushels to 30 bushels, while crops of 50 to 60 bushels are not uncommon. In the South Atlantic States, including Maryland, the increased production is still more notable."—*Baltimore Sun.*

Removing Small Stones.

We have now before us a short and sharp paragraph on the necessity and security of removing from the highways the loose and small stones which are so frequently allowed by road-repairers to remain scattered about on the road-bed. The article referred to says: "A single stone, which might be thrown out in two seconds, is sometimes struck by wagon wheels fifty times a day, or more than 10,000 times a year. Ten thousand blows of a sledge hammer as hard on one wagon would probably demolish it entirely, and the stone does no less harm because it divides its blows among a hundred vehicles. There is, therefore, probably no investment that would pay a higher rate of profit than a few dollars' worth of work in clearing public highways of loose and fixed stones."

In connection with this subject we may mention that in passing over the turnpike running from the Foxchase village, in the Twenty-third ward, to Huntingdon valley, a couple of years ago, we noticed a laborer gathering up the loose stones, using a heavy iron rake for the purpose, and after raking them into little heaps, shoveling them into a wheelbarrow whence they were hauled to one side and piled up to be used when there was occasion for it. We stopped at the next "gate" and inquired if this was the usual practice of the company, and were answered that it was. We then said that no one would complain of paying his toll where such care was taken to protect vehicles and horses from damage; and besides, we remarked, that this is the best kept turnpike we ever passed over in Pennsylvania.—*Germantown Telegraph.*

Changing the Crop.

The advantages of a rotation, either regular or irregular, result from a number of considerations, some of the more important of which are as follows: First, different crops require food elements in different proportions—thus potatoes require much more potash than wheat, and this crop grown for a succession of years would exhaust the natural supply much more rapidly than when only grown with a number of other crops between, not demanding a large amount of potash. In the second place a rotation, when managed properly, enables one crop to prepare food for another. Clover sends long tap roots into the sub-soil which act as pumps to bring up food elements that may be used by surface feeding crops that follow. Thirdly, as different crops require different methods of cultivation, the rotation can be so arranged that there will be a constant supply of labor distributed throughout the whole season. For the same reason the variety of crops permits of a better cultivation and improvement of the soil, the destruction of weeds, etc.

The Crop and Cornfodder.

It is not within remembrance that we have seen a heavier and better crop of cornfodder than that of the present year, so far as this section is concerned. It is clean and bright, never having been touched with a heavy rain-storm, by which it is sometimes thrown down and dirtied. It is also more carefully put in shucks than was formerly the case; and now if the crop is husked and secured before it shall become moulded by being too long kept closely bound and excluded from the air, there will be a supply of cornfodder which, for quantity and quality, the farmer has rarely seen. For cattle it is excellent, even milch cows thriving well upon it, especially if it be cut and steamed and sprinkled with a little cornmeal. The leaves, too, for driving-horses are excellent. In putting in stacks, either in the field or near the barn, after being husked, it is not necessary that it should be under cover, provided it is packed with the buts in the centre, and thus built up and given a slight descent to the outside of the stack to carry off the rain.—*Germantown Telegraph.*

HORTICULTURE.

Fall Transplanting.

As between fall and spring planting of trees each has its disadvantages as well as advantages. One of the great difficulties to success in fall planting is that the soil at that season of the year is apt to be too dry, and thus, the soil lacking moisture, the natural moisture of the tree is called on to supply the exhalation constantly going on from the stem. Consequently the trees go into winter in a more or less exhausted condition, and if not entirely killed have their vitality so impaired that their recovery is slow.

Another objection to fall planting is that the trees are more or less liable to be shaken about by the winds of winter, always hurtful, unless they are firmly rooted. It is true the first of these objections may be partially prevented by a thorough watering at the time of setting, and the second disability may be met by careful staking and laying—both of which expedients, however, are slow and expensive. But the best way to obviate these objections is to order your trees in the fall after the foliage has been killed by the frost and the wood thoroughly ripened, and then to heel them in carefully until spring, taking care to plant them out when the ground is in the best condition to supply the needed moistute, but not too wet.

If one could find time to go to the nursery with his team in the spring, procure his trees and plant them immediately, the spring is no doubt the best season for the business; but, owing to the press of other work at that time of year, there are few that can do so. It would seem, therefore, that the best time to procure the trees is in the fall, and then to heel them in for the winter. The heeling-in process is best done by plowing a deep furrow, turning it towards the south, and following it with another still deeper but narrower furrow alongside of it, and then with a little use of the hand-shovel, a trench and bank can be made exactly to suit. This done, place the roots of the trees in the trench, with the tops leaning against the bank at an angle of about forty-five legrees, and fill in about the roots with fine earth, tramping it firmly, but taking care not to bruise or break them. If necessary, finish by throwing more earth over the roots, and if the tops are covered nearly or quite up to the limbs, so much the better. If the soil is dry, wet the whole thoroughly with water; for, as stated before, nothing is more fatal to newly-dug trees than a lack of moisture at the roots. When all this is satisfactorily accomplished, throw some hay or rotted straw over the roots as a mulch and to prevent the ground from freezing too deeply. If there is danger from mice, examine occasionally, and if any indications of their presence appear, poison or entrap them.

Having done all this you may rest secure that your trees will not only winter in the best possible condition, but be all ready for growing in the spring when planted. We omitted to state that the first thing to be done upon receiving the trees is to cut off with a sharpe knife any portion of the roots that are broken or torn, for the ragged surfaces of roots can no more heal over than those of broken limbs.

A Wet Cellar for Apples.

One of the conditions which has long been considered necessary for keeping apples is dryness. This, however, is now disputed by many of the largest fruit-growers in the country, among whom Irving D. Cook, a leading orchardist, of Genesee county, New York, gives his opinion in the New York *Tribune*, as follows:

"In view of the constantly increasing production of apples, and the remunerative prices at which those kept longest are sold, it is of vast importance that we practice the best known methods of picking, packing and storing. In this matter many pet theories are advanced directly in conflict with those of others. For instance, a recent correspondent states that among the essentials for keeping apples is a dry cellar with cement bottom. This is directly opposite the experience of all fruit-dealers with whom I am acquainted, among them two from West Virginia, who handle thousands of barrels of apples annually. One of them remarked when inspecting my cellars that whenever he entered a cellar and was compelled to walk on boards to keep out of the water, (as was the case in mine,) he was sure to find the fruit in good condition, providing, of course, that the temperature had been kept as near the freezing point as possible without encountering it. Another large orchardist, Oliver C. Chapin, of East Bloomfield, N. Y., rather startled the members of the Western New York Horticultural Society by averring before them, on a recent occasion, that apples in his cellar kept just as good over a cistern of water as in the dryer parts of it. Now, both of these gentlemen are enthusiastic in their thories. Are they correct? As an experiment, in the fall of 1879 I made selections of the Northern Spy and Yellow Bellflowar, handled each specimen carefully, wrapped them separately in paper, and stored them in my cellar, where, (owing to the springy nature of the bottom,) water settled on portions of it during the spring months. The result was that we had samples of the Spy in a good state of preservation as late as July, and of the Bellflower till June. Taking in consideration the fact that neither of those varieties are classed as long keepers, they being generally termed "holliday fruit." I am fully convinced that by careful and judicious handling, and observing all the other conditions favorable for keeping fruit, dampness, or in other words a wet cellar, is not detrimental to the long keeping of fruit."

Mulching Newly Set Trees.

The benefits of mulching for newly set trees, whether fruit or ornamental trees or hedges, cannot be overestimated, especially for our changeable latitude. Our wet and cool springs are almost invariably followed by a severe summer drought, and, unless in locations that are naturally quite moist, these periods of hot, dry weather through the months of July and August give a severe trial to newly-set trees. The rootlets that are put out as the tree begins to get settled in its new position sustain a check from the severe drying through of the soil which summer brings, and the tree begins to lag, in consequence. This is the cause of the failure of many newly-set trees, fruit and other, and the reason why they do not gain vitality sufficient to carry them through the first winter.

Now, the universal and easily applied remedy for this serious trouble is mulching; and, having lately talked with many farmers with special reference to this point, we are satisfied it is the main cause of success with young orchards, ornamental trees, hedge-plants, and such shrubs and small fruits as currants, grapes, strawberries, blackberries, etc. Several orchardists whom we have recently visited, and who make a *business* of taking care of their trees, have informed us that their success depended almost wholly upon mulching. And a gentleman who haa one of the healthiest and best kept *arbor vitæ* hedges we have ever seen—strong, compact, and beautiful in foliage—tells us he attributes his success with it when young, which gave it its good start, wholly to the fact that it was mulched thoroughly for two or three years, until the trees themselves produced sufficient growth to do their own mulching, by affording ample shade.—*N. E. Farmer.*

Enriching Orchards.

Any farmer who has been accustomed to raising apples and has been uniformly successful, will doubtless say that if he expects to get good crops he treats the orchard as he does for any other crop—he manures it, and he finds that a manure that will do for most other crops will do for the crop of apples. It is the neglect to manure orchards at all that causes them to bear so poorly and the trees to look in bad condition. There is nothing better than wood ashes for orchards, if we had the ashes; but nearly everybody burns coal except in certain out-of-the-way sections, and we must therefore resort to something else. Next to wood ashes there is no other fartilizer better than barnyard manure. A liberal application of this, if only once in three years, with careful pruning and scraping of the trees, and ferreting-out the borers and all other insects which lay concealed under the bark, will soon make a change in the productiveness of the orchard. October and November are the best months to apply the manure and to give the trunks of the trees a good scraping-off of old bark. If the trunks were washed with whale-oil soap, say one pound to an ordinary-sized bucket of water, there would not be many insects left alive after the operation.—*Germantown Telegraph.*

A Great Orchard.

The *Farmer's Review* publishes a detailed account of the orchard of A. R. Whitney, of Illinois, who has 155 acres in apple trees. He set the first 400 trees in 1845, and now has 16,000 in bearing. He began with 144 sorts, though only 30 are left, his object being to test them. For summer and autumn, he chooses Red Astrachan, Maiden's Blush, Snow & Bailey's Sweet, and for winter and spring, Domine, Jonathan, Willow Twig, Ben Davis and Winesap. His largest crop in 1875, was 26,000 bushels, one-half of which was shipped to market, and the other

half made into cider. He does not count on a full or heavy crop oftener than once in four years. For the codling moth he turns sheep into the orchard, by which these insects are nearly cleared out. The long-wool sheep are best, as Cotswolds, Leicesters and South Downs; Merinos eat the bark. The soil of the orchard is rich enough without manure. Mr. Whitney advises for an orchard that it slope to the north, cultivation with corn for a few years, then seeding to clover, to be plowed under every three or four years.

Grafting in Winter.

Some horticultural wiseacres have discovered that fruit-grafting can be done in the winter season nearly as successfully as in the spring, and regard it as a discovery of vast importance. We should suppose that, as this work is by no means agreeable when the mercury stands below the freezing point, the three spring months, when grafting is sure to be successful if done with any degree of care, would be ample time for the labor to be performed, even in the most extensive nurseries. Those who may like it and are willing to run the risk of winter-grafting, will of course exercise their own wish about it; but we would suggest to those who have valuable apples or pears that they are anxious to propagate, to adhere to the more favorable seasons for doing the work.—*Germantown Telegraph.*

Domestic Economy.

Storing Potatoes.

Every method has been tried by farmers to store and preserve potatoes during the winter, and, we may say, until potatoes come again. It is the most valuable of all vegetables, though here and there we find a person and a writer who undertakes to tell us of their unwholesomeness. It is universally consumed in all civilized countries, as where it cannot be grown it is imported, which can be done long distances without injury, when ventilation is attended to. In storing potatoes several methods are adopted, yet they are practically the same, the object being to protect them against freezing, whether buried in pits or stored in cellars. The first consideration is to keep them in perfect darkness; the next is, the bins should not be too deep—not over three feet—to produce warmth and cause them to sprout. When stored in the field, straight trenches are dug, say twenty feet in length and four or five in width, which are filled to the depth of three feet with potatoes, then well covered with straw, on top of which put eighteen or twenty inches of earth. In a pit twenty feet long there should be about three gas escapes or ventilating openings, which should be plugged with straw and covered with a board set at an angle to turn the rain. If in cellars, barn or otherwise, the bin should be covered with rugs, old carpetings or straw. Those intended to be kept for late spring sales should be frequently examined and all sprouts removed; for as soon as a potato begins to sprout it loses its solidity and dryness.

Night Air.

An extraordinary fallacy is the dread of night air. What air can we breathe at night but night air? The choice is between pure night air without and foul air from within. Most people prefer the latter. An unaccountable choice. What will they say if it is proved to be true that fully one-half of the diseases we suffer from are occasioned by people sleeping with their windows shut? An open window, most nights in the year, can never hurt anyone. This is not to say that light is not necessary for recovery. In great cities night air is often the best and purest air to be had in twenty-four hours. I could better understand shutting the windows in town during the day than the night, for the sake of the sick. The absence of smoke, the quiet, all tend to make night the best time for airing the patient.

One of our highest medical authorities on consumption and climate has told me that the air in London is never so good as after 10 o'clock at night. Always air your room then from the outside air if possible. Windows are made to open, doors are made to shut; a truth which seems extremely difficult of apprehension. Every room must be aired from without, every passage from within. But the fewer passages there are in a hospital the better.—*Florence Nightingale.*

Drying Apples.

The rapid increase or the fruit drying business throughout the country is making a market for the surplus apples and small fruits, which otherwise would be wasted, and is giving the residents of towns a supply of fruit for their tables which they could not otherwise enjoy. Among the larger drying establishments is that of D. Wing & Co., of Rochester, an account of which is given in the *Rural Home*. They have four Alden evaporators, which, running day and night, dry 400 bushels in 24 hours, consuming three-fourths of a ton of coal at the same time. Windfalls of good winter sorts are used, for which twenty to thirty cents per hundred pounds are paid the farmers. Twelve Hubbard's apple parers and slicers are employed to fit the apples for drying, each parer requiring two girls to attend it. Before drying, the fruit is bleached with the fumes of burning sulphur, which whiten it without affecting taste or quality. About seven hours are required for the entire completion of the drying from its commencement. Each dryer holds thirty bushels. Each bushel of apples yields about five pounds of dried fruit. A great advantage in transportation is shown by the fact that the dried fruit weighs only about one-tenth as much as the fresh apples from which it is made. At another drying establishment in Rochester, ten tons have been contracted to a London dealer, who pays at Rochester seven cents a pound for it, or $140 per ton; last year the price averaged six and a-half cents.

Beautifying Bedrooms.

The newest mania among fashionable women, married and unmarried, is to make their bedroom beautiful. The lately acquired taste for decoration is now taking that turn, to the neglect of drawing rooms and parlors. Pillow shams and bed spreads are luxuriously and expensively gotten up of silk, satin, embroidery and lace; dressing cases are furnished with elaborate taste and ingenious fancy work receptacles for toilet and other articles. Bottles and boxes of the finest workmanship and choicest materials hold the cologne, perfumeries, powders and other scents for her ladyship's toilet. Pictures hang upon the wall, or they are hung with silk, lace or Oriental stuffs. Even her toilet crockery must be of the choicest ware, or composed of odd pieces. The ideal bed has a canopy over it, and this is made as beautiful as taste and money will permit. The framework is made of metal, commonly of burnished brass or nickel. From this is suspended beautiful curtains held by cords and tassels, ribbons or bands. Statuary are on the walls, and the city is searched for rare and beautiful things to put in this ideal, at present, of a woman's heart—her bedroom.

Learn the Value of Money.

A silver dollar represents the day's work of the laborer. It is given to a boy. He has no idea of what it has cost or of what it is worth. He would be as likely to give a dollar as a dime for a top or any other toy. But if the boy has learned to earn the dimes and dollars by the sweat of his face, he knows the difference. Hard work is to him a measure of values that can never be rubbed out of his mind. Let him learn by experience that a hundred dollars represents a hundred weary days of labor, and it seems a great sum of money; a thousand dollars is a fortune, and ten thousand dollars is almost inconceivable, for it is far more than he ever expects to possess. When he has earned a dollar he thinks twice before he spends it. He wants to invest it so as to get the full value of a day's work for it. It is a great wrong to society and to a boy to bring him up to man's estate without this knowledge. A fortune at twenty one without it is almost inevitably thrown away. With it, and a little capital to start on, he will make his own fortune better than any one can make it for him.

Useful Hints.

Sweet apples are fattening, simply because the sweets, oils and starch are so, but the sour ones (acids produce leanness) nourish more than they fatten; both are wholesome as food. Tea, water, etc., do not fatten, but may bloat. Strong, green tea may so far injure the health as to produce leanness and neuralgia.

Among the causes of salt-rheum are the excessive use of salt—as the name indicates—and of strong acids, with the use of poor soaps, with too much alkali in them, which irritates the skin, appearing on the hands, etc. It is highly probable that some of the victims of this eruption use too much soap on their hands, simply, and wet them too often. If the skin seems dry and hard, apply glycerine or sweet oil at night.—*Household.*

A Cheap Well.

A correspondent writes: "Dig down to a depth of five or six feet a hole four feet in diameter; brick it up—using water lime mortar. Below this dig your well in diameter a little less than the bricked top, and as you go down plaster the dirt or sand on the sides with water-lime mortar. A well dug and plastered in this way costs one-half the price of an ordinary well of the same depth and diameter, and is proof against all kinds of vermin, nor can any dirt wash down from the sides. I have a well made in this way that has done excellent service for eleven years, and in that time it has been cleaned out only once. There is no need of cleaning such a well, as there is no accumulation of filth in it. The bricking at the top is done to avoid injury from frost, as the plaster peels off where the ground behind it has frozen."

Own a Home.

Every man who has or expects to have a family should strive to become the owner of a home, for without one he can never feel nor be independent. With a home of his own he becomes better contented, feels a deeper interest in public affairs, and is a better member of society. No man should rest satisfied until he possesses at least a small portion of the grandest of all possessions—land—the fruitful mother of all the productions which sustains existence, secures comfort and gives stability and independence to life. Every man makes his life what it is, out of the material circumstances which surround him. How different the feelings of the family, with a home they can call their own, to those who are dependent tenants.

Household Recipes.

To keep fresh meat sweet for a week, in summer, plunge it in vinegar, with a plate over it to keep it under. Wash off when using it. Try it.

Cold Slaw*.—Cut a head of cabbage finely; salt to taste, rubbing it gently between the hands for a few minutes; drain all the water off; take a half-pint of vinegar—not too strong—one tablespoonful of sugar; two spoonsful of sour cream; beat it in the cut cabbage a few minutes; sprinkle pepper over it and serve.

Eel Pot-pie.—Cut your eels in pieces about an inch and a half in length; take a pan about two inches deep; butter it around the sides; put in some pared potatoes cut in pieces—not too small—and add some of the eels; sprinkle pepper and salt over them, with a little saffron; roll some of the dough you intend to use and cut it into squares; lay some of them over the top and around the sides; put in another layer of potatoes and eels, and roll a top-crust. Before you put it on pour a pint of boiling water in the pan; cut three or four holes in the top-crust, put it on and press it firmly against the pan around the edges; put it in an oven, hot enough to bake bread, for one hour.

Spirits of Ammonia, applied to a fresh wound or a bruise, relieves the pain almost immediately.

Cream should be stirred twice a day, if not churned on the same day, and kept in a cool place till wanted. Leoline.

To Tell Good Eggs.—If you desire to be certain that your eggs are good and fresh put them in water—if the butts turn up they are not fresh. This is an infallible rule to distinguish a good egg from a bad one.

To Broil Tomatoes.—Cut off the green part of the stem and place the tomatoes on a gridiron over the hot coals, and cover with a pan or lid. They are to be cooked slowly. When done take up, dress very liberally with butter, salt and pepper.

Marlborough Pudding.—Stew a few apples and strain them, add a teacup of butter, a teacup of sugar, a teacup of cream, the juice of two lemons with the best part of the grated rind, a little mace and four eggs beaten lightly, and to be baked in a rich paste.

Lemon Ginger Cakes.—Quarter pound of butter, one-half pound of sugar, three eggs, one small cup of milk, the same quantity of molasses, three and a quarter pounds of flour, teaspoonful of ginger, one of cinnamon, one tablespoonful of saleratus dissolved in milk, the rind of two lemons and the juice of one. Bake in a quick oven.

Indian Meal Pudding.—One pint of Indian meal cooked, one quart of milk, half a cup of butter, one pint of molasses, four eggs, with a little cinnamon or nutmeg; boil the milk, stir in gradually the meal, mix all together and let it stand two hours; add the eggs when the pudding is ready to put in the oven; let it bake two hours.

Warmed-over Biscuits.—Stale cream biscuits can be so nicely warmed over that none can object to eating them. They may be broken apart, and a quarter of an hour before tea should be dipped separately into a bowl of clear water, and replaced in the baking tin in the oven. They should simply be heated through, but not browned or crisped.

Sausage.—Housekeepers will do well to preserve the following first-rate recipe for sausage. To every twelve pounds of meat take three tablespoonfuls of salt not much heaped, three tablespoonfuls of black pepper, eight tablespoonfuls of sage, and half a teaspoonful of red pepper. Good sausage is splendid with buckwheat cakes in winter, and I got this recipe from a friend whose sausage is always good as long as it lasts.

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*"Cold Slaw" is a corruption of the Saxon *kohl salaad*, which simply means *kale salad*, or *cabbage salad*. Some people prefer this salad hot, but it is seldom if ever called *hot slaw*. They may not know the origin of the name. The cruciferous genus, *Brassica*, includes the kohls, cales, cabbages, cauliflowers, &c.

PANNED OYSTERS.—One quart of oysters; some thin slices of toast; butter, salt and pepper; have "patty pans" with upright sides; cut stale bread in rounds to fill the bottoms of these; toast and lay a piece in each; wet with oyster liquor and put into each pan as many oysters as it will hold; put pepper, salt and a piece of butter in each; arrange all in a large dripping pan; invert another of the same size over it, and bake eight minutes, until the oysters are "ruffled."

CHOW-CHOW.—Two heads of cabbage cut fine; one-half peck green tomatoes; one-half peck onions; five dozen cucumbers, slice the large ones; three-quarters of a pint of small red and green peppers; sprinkle with one pint of salt, and drain all night; pour off all the juice and add one ounce pepper grain; one ounce white mustard seed; one ounce celery seed; one ounce tumeric; one ounce cloves; three tablespoonfuls of ground mustard; two pounds brown sugar; enough horse radish, grated fine, to make a pint. Cover all with strong vinegar and boil 30 minutes. In laying the pickles put a layer of pickles and a layer of spices. Half the above quantity will make plenty for a family of three or four.

TO PICKLE RED CABBAGE.—Take a large, firm head of red cabbage, and after taking off the outside leaves and cutting out the stalk, divide it lengthwise and shred it crosswise. Lay it in a dish, and sprinkle salt over it; cover it with another dish, and let it stand over night; drain in a colander, free from salt, and wipe dry. Make a pickle of sufficient vinegar to cover the cabbage, adding to it equal quantities of allspice, cloves and some mace. The spices must be put in whole, and a little cochineal to give it a good red color. Boil the vinegar and spices hard for five minutes, and having put the cabbage into a stone jar, pour the vinegar over it, boiling hot. Tie up very closely.

TO FRY OYSTERS.—Select fine ones and drain off liquor. Roll cracker into dust, which is done with paste roller. Dip one oyster in at a time and lay on meat board or platter. Let remain fifteen minutes, when dip in beaten egg and again in cracker dust. Let them stand for half an hour. Heat in a frying pan one pound of clarified lard. When the blue smoke rises the proper cooking point of heat is indicated. Drop in a peeled potato or piece of hard bread, which will prevent the fat growing hotter. Drop in the oysters very lightly, and when delicate brown turn. Remove to cullender when both sides are brown, and lay on brown paper when first dished. The frying pans containing inside strainer are the best for this use.

RECEIPT FOR CURING MEAT.—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, etc., as follows: To one gallon of water take 1½ lbs. of salt, ½ lb. sugar, ½ oz. saltpetre, ½ oz. potash. Omit the potash unless you can get the pure article. Druggists usually keep it. 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, etc., leaving the meat fresh and clean. Some omit boiling the pickle, and find it to answer well, though the operation of boiling purifies the pickle by throwing off the dirt always to be found in salt and sugar. If this receipt is strictly followed it will require only a single trial to prove its superiority over the common way, or most ways, of putting down meat, and will not soon be abandoned for any other. The meat is unsurpassed for sweetness, delicacy and freshness of color.

LIVE STOCK.

Saddle Horses.

The *American Stockman* has some interesting chat about saddle horses, from which we quote as follows: "To the man who travels over the face of the earth, migrating from country to country, nothing will appear as more extreme in the manners of the different people he comes in contact with, than their various methods of riding horses. While the Arab is the ancient ideal of a perfect horseman, yet our own country probably furnishes as great variety and styles of horsemanship as all the nations of the world put together. Let us take a hasty glance at the different patterns our country affords: In Mexico, Texas and the extreme Southern States the style of riding is quite unique. On the other side of the Mississippi river a suitable costume is quite indispensable. The bridle is armed with a curb-bit of terrific leverage. The saddle bears an immense pommel to ease the strain of the lariat or the elbows of the sleepy rider. A common buckled girth would never do in such scientific riding. The broad hair band is tightened with a cunning twist from a long loose strap that has been 'sprung' upon until the band is as tight as wax. We are all, at least in pictures, familiar with the broad sombrero, slashed breeches and large silver spurs with their attached 'jingles.' This rider in his appointments and horsemanship is certainly worthy of much admiration, for he always looks 'at home,' and graceful when he tries to be, even on the most veritable plug of a mustang. It is seldom, however, that his charger calls forth anything but a feeling of pity from the educated horseman. The native breeds of those sections is a long way off from the ideal saddle horse of the Middle States. In Tennessee, Kentucky and Virginia we probably see the art of horsemanship, both in its relations to horse and rider, carried to a higher standard than in any other part of the world. Here we find the horse bred for generations under the most enlightened rules for breeding, and with the sole purpose in view of making him the perfection of a saddle horse. In physical features he is a model of the artist. In gaits his variety is infinite—a rapid walk, fox trot, rack, trot, lope and run, changing from one motion to the other at a practiced signal from the rider. In temper perfect, quick and comprehensive. This is a point which no one but the practical rider can appreciate. The bridle lines are actually useless with him. A slight bending of the body forward informs him you wish the gait quickened; setting firmer back in the saddle intimates to him to slacken the gait; a slight bending of the body in the saddle, with a little pressure of the opposite knee, and perhaps an unconscious motion of the bridle hand in the direction you wish to turn is all the management he needs. The lines are never pulled to turn him right or left, but pressed against the side of the neck opposite the direction you wish to turn. Leaning forward in the saddle puts him in a fast walk or fox trot. To put him in a rack the bridle reins are pulled taut, while the heels bring the spur pressure to his sides. To make him trot, the reins and heels are let loose, the hands pressed upon the withers, and the body slightly raised in the saddle until he gets settled in his gait. To make him canter or lope settle in the saddle and wave one hand in the air. These are not the inventions of a single individual, but the universal custom among those who train saddle horses in the States named.

"We now come to the rider of this perfected saddle horse. He sits in his seat with an easy comfortable grace that shows his familiarity with it from earliest boyhood. The stirrups are so long that his toes barely rest with ease in them, while his heels turn slightly outward, relieving his appearance of extreme awakwardnes that is so often seen in riders whose toes point at right angles with the horse's sides. These horses are thoroughly bitted when young, and thus taught to carry a high and stylish head, so that when in full motion, with the favorite gait, a rack, and bestrid by this superb rider, the whole makes a picture that challenges our highest admiration."

Pigs for Next Year.

As this is the time of year when farmers are determining what hogs to fatten, it is also the time for deciding upon what they will do for pigs the coming year. As is often the case, a farmer will fatten and kill off all the sows that have had pigs that season, and depend upon gilts for breeders the following year. But it is never good policy to kill a sow that has proved herself a good breeder and suckler, and rely upon one whose qualities in these respects are yet to be developed. Besides, the pigs of a sow which has already proved herself a good breeder and milker are always, as a general thing, stronger, start off much better, and are sure to keep the lead in the race of fattening. The worth of a good sow in bacon is a small matter in comparison with the two litters of pigs she will have the following year.

The farmer should always endeavor to raise his own stock, whether they be horses, cows, sheep or hogs: an if he has good comfortable quarters for his sows they should be bred early in November, so as to farrow in March. But if his sows are allowed to run out in the fields or wood lot, and take chances, it is better not to breed them until January. If they farrow in March they can have another litter in August or early in September; but if they have their first litter the last of April or first of May, they can not be expected to have another brood before cold weather sets in. A sow will have pigs in four months lacking six days from the time she is bred, and the farmer should make preparations for the occasion accordingly. She should be put in a separate apartment at least a week before farrowing, so as to accustom her to her new quarters, supplying her in the meantime with cut straw for bedding. After farrowing she should not be disturbed for a day or two, even to give her food or drink, for when she wants either she will soon let you know. After beginning to feed her increase her allowance gradually for the first five or six days, and then give her as much rich food as she will eat. The pigs will soon learn to eat with her, and should also have all they will eat. In this way the pigs can be made to weigh from 150 to 200 pounds by the time they are eight months old. This is the most profitable way to make pork. No time for cholera; no time for idle capital; no time for "bad luck" of any kind.

Balky Horses.

As long as we can remember we have read of remedies for balky horses, and they have been pretty much of the same nature, to wit: To examine the harness on one side and then on the other, then jump into the wagon and drive off. Very nice, but try it. Next, take the horse out of the shafts and make him go round and round until he is giddy, &c. Rather difficult, we think, to make a horse giddy. Next, to place the hand over the horse's nose and hold it there, preventing him from breathing until he wants to go. Easy to try. Next, take a couple of turn of stout twine around the forelegs just below the knee, tight enough for the horse to feel, and tie in a bowknot. He will at once start, and the string can be removed. Next, take the tail of the horse between the hind legs and tie by a cord to the saddle girth. Next, tie a string around the horse's ear close to his head. There is another which we know frequently answers, which is to catch up a handful of dirt and forcing it into the mouth of the animal. But there is still another, the one we have adopted in all cases, and have never yet known it to fail. It is to pass a twine around the lower jaw, and of course below the tongue, and tie it quite tight over the top of the head, leaving an end of two or three feet, by which to pull at, walking in front of the horse. This will be found to be a remedy in all cases if properly done.

Kindness to Cows.

It is important that dairy stock, from the young calf to the old cow that is being fed for beef, should be handled and treated kindly. If a calf is handled roughly, and becomes wild and vicious thereby, when it becomes a cow you may expect the same; but if handled carefully and treated with kindness, when grown up she will be mild and gentle. It may not always be so, but in general it is. There have been many cows spoiled by the person having the care of and milking them, whipping or frightening them, whenever they come in his way, or if, when milking, a cow hoists her foot or kicks (which is generally caused by pain,) such a fellow stops milking and commences whipping, or worse, kicking the cow, and she becomes enraged, holds up her milk, kicks back, and is finally ruined. Never whip a cow for kicking, if she does kick the milk pail out of your hand and sometimes upset and knock you, but be kind and gentle with her, and milk her out with as little excitement as possible; and if she gets over her kicking propensity it will be by mild and not by harsh treatment. Never whip a cow because she kicks, for it will do no good, but it will do a great deal of harm.

Lice on Stock.

A number of letters ask for remedies for lousy stock. Vermin of some kind very frequently infest domestic animals; they are most frequently of the louse type; small parasitic animals that must be removed by the application of some insecticide. A number of substances have been used to a greater or less extent, of which a few are mentioned below: One pound of tobacco and six ounces of borax boiled in two quarts of water, to which soft soap enough is added to make a thick paste, has proved a good vermin salve. A mixture of carbolic acid and soft soap in the proportion of one to four makes a compound easy to apply and very effectual. Shortly after, the parts to which the soap mixture has been applied should be washed with pure water and a non-drying oil rubbed on. Oil of turpentine and lard oil, equal parts, with a little carbolic acid, is, perhaps, the most convenient mixture to make, and effectual in its application. Animals that are affected with vermin need better care and higher feeding in order to overcome the drain that those parasites make upon the system.—*American Agriculturist.*

Training a Heifer to Milk.

Cows usually become addicted to kicking when heifers from being milked by abusive milkers. An old cow never becomes a kicker unless abused. Instead of cows being averse to being milked when giving a large quantity, it is always the reverse. When pasturage is good and cows come home at night with udders distended with milk, they seem grateful to have it removed. Milking a heifer for the first time requires patience, for they will almost invariably kick. In such a case put a broad strap around their body, just in front of the udder, and buckle it up moderately tight, and as soon as she gets quiet, (for she may dance around a little at first,) take your pail, sit down and get to milking, for she is as helpless as a kitten. Do not attempt to use a rope instead of a strap, for it will not answer. A few applications of the strap, with plenty of patience and kindness, will cure the most obstinate case.

Meal and Grain for Breeding Stock.

Forcing food is not necessary for breeding animals, and a great deal is worse than wasted. Especially is this the case when cornmeal or grain is profusely fed, and the animals are so confined in sheds or

yards as to take very little exercise. If roots are not grown, and there is no old pasture lot on which sheep or cows can run for a few hours by day, or the climate is too severe in winter to admit of any ranging around, hay made from grass cut while young and tender would only be required. If this is not to be had, and the forage is dried-up hay from grass cut when dead-ripe, some oil-cake would be the best help. It is a pity the farmers of the United States do not use all this exceedingly valuable food instead of its going over the ocean to England to be sold to the tenant farmers there. One great cause for this exportation is the grasping covetousness of middlemen, who buy of the manufacturers at a little over $30 per ton for the best, and charge more than 50 per cent. retail, so that the farmers across the Atlantic pay less for it than those here who get it in small quantities. Another evil is the grinding it into dust and adulterating, which the English escape, as they always purchase theirs in the cakes and crack it up themselves.

Wolf Teeth in Horses.

The so-called wolf teeth are in themselves harmless enough, yet the popular prejudice has foundation which it would be well for horsemen not to ignore. Most diseases of the eyes occur at that period of life when the milk-teeth are being most rapidly shed, and the permanent teeth are coming up. To suppose that a horse suffers nothing in cutting his teeth is a great mistake, as is shown by the frequently slow and painful mastication of food occasionally in a half chewed condition, and by the heat, redness and swelling of the palate and gums. That red, swollen and tender state of the roof of the mouth behind the front teeth, familiarly known as "lampas," is but an indication of this teething trouble; and in not a few instances it renders the animal feverish, weak and, by virtue of the general congestion of the head, strongly predisposed to inflammation of the eyes. The wolf teeth are in the mouth during the greater part of this period of teething, and are usually shed towards its completion; so that once it is hinted that these are the cause of the trouble with the eyes, the owner, looking into the mouth, seems to find ample confirmation of the statement. The wolf teeth are, however, the most harmless in the mouth, having long ago reached their full development, and are but slightly inserted in their sockets; while the great and dangerous irritation attends on the cutting of the large grinding teeth and, in the male, of the tushes. The presence in the mouth of the wolf teeth at this time is an accident, and not an injury. The temporary recovery often following their removal would have taken place all the same had they been left in the mouth, and a latter attack is just as likely as if they were present. The excitement attendant on teething is natural; what we should guard against is its excess. Any costiveness of the bowels should be corrected by the feeding, or, if necessary, by one ounce Glauber's salt daily. Teeth pressing painfully beneath, resistant, painful gums, indicate the need of the lancet; teeth entangled on the crowns of their successors should be removed; all excessive swelling, redness, and tenderness of the gums demand lancing; and, finally, all unnecessary excitement or exhaustion should be avoided.—*National Live Stock Journal.*

Fattening Hogs.

Those farmers who have not already put up their hogs for fattening should lose no time in doing so, it being a well established fact that hogs fatten much more readily in mild weather than when extremely cold. Every pound of flesh made now will cost at least a fourth less than that made in midwinter. A farmer often puts his fattening hogs in an open pen, exposed to all kinds of weather, but if he but understood how much more they will gain in a given time on the same food when sheltered from the cold and wet, he would not hesitate in providing them shelter. There is a marked difference also in the manner of feeding hogs in fattening them, each farmer pursuing his own course in this respect. Numerous experiments have been made with a view to test the merits of cooked food with that fed uncooked—a most notable instance of which is given in the Agricultural Reports, as follows: An Iowa farmer put up 20 one-year old hogs, and for the first 28 days fed them on dry shelled corn, of which they ate 83 bushels and gained 837 pounds or a little over 10 pounds to a bushel of corn. He then fed the same hogs for 14 days on dry cornmeal, during which time they consumed 47 bushels and gained 553 pounds, or 11¾ pounds to the bushel. The same hogs were then fed fourteen days on cornmeal and water mixed, consumed 55½ bushels of corn and gained 731 pounds, or 13 1-6 pounds to the bushel of corn. He then fed them for fourteen days on cornmeal that was cooked, and after consuming 46⅛ bushels of the cooked meal they had gained 690 pounds, or nearly 15 pounds to the bushel of meal. The above figures were certified to by responsible parties, and are worthy of consideration by all farmers, who generally try to get the most they can from a bushel of corn.

Cure for the Epizooty.

An old veterinary surgeon sends the *N. Y. Times* the following "simple and safe cure for the epizooty: "Take one pound gum asafœtida, mix it with one gallon boiling water, stir the mixture constantly until the asafœtida is dissolved, let the mixture cool, strain and give one-half pint every three hours. This will relieve the horse within twelve hours, and give him a good appetite."

Swine.

Pigs will fatten nearly as fast on potatoes this month as on corn next. They do best on cooked feed, and the grain ought to be ground

LITERARY AND PERSONAL.

THE CATTLE INTEREST IN KANSAS.—The cattle interest is most thoroughly and comprehensively treated in the Third Quarterly Report of the State Board of Agriculture, just issued. This report comprises 156 pages, giving the latest statistics relating to population, wealth, acreage of crops, meteorological data for the quarter, condition of farm animals, orchards, etc. The special feature of the volume, and one upon which much labor and time have been expended, is the presentation of the cattle and dairy interests. The plan pursued in treating this subject has been to secure from the breeders of the State, and those possessing experience in Kansas, papers detailing the methods pursued by them, the results of different methods of breeding and management, and to condense in the most compact form the greatest amount of information from those best able to speak intelligently upon the subject. The breeding and treatment of thoroughbreds for beef and for butter, and experience with grades and grazing cattle, will be found in this volume, given without theorizing. The papers on "The Treatment of Milk Cows, and Manufacture of Butter and Cheese," will be specially valuable to those who contemplate engaging in this business. Kansas is shown by these witnesses to possess excellent advantages for stock raising, and the information given by over 250 contributors to this volume cannot be over estimated.

The work here accomplished by the State Board of Agriculture for the farmers of the State, and those who contemplate making Kansas their home, could not be expected from any other source, and will be worth a hundred times its cost to the State, both at home and abroad. The volume may be procured by inclosing the postage (five cents) to the Secretary of the Board, J. K. Hudson, Topeka, Kansas.

ELECTRO-MAGNETIC JOURNAL, published by the Electro-Magnetic Brush Company, Cincinnati, Ohio; sent to any address on receipt of six cents. This is a royal octavo pamphlet of 38 pages, and illustrated tinted paper covers, exclusively devoted to the description and illustration of electro magnetic apparatus, and especially to the magnetic brush, which seems to be a new invention in the application of electro-magnetism to the human system as a curative agent. In short, the "Illustrated Magnetic Journal" contains practical advice on the curing of diseases, and the prolongation of human life; also illustrates wonderful scientific inventions, among which are the electro-magnetic brushes and the family battery, by which nearly all diseases are effectually cured. Among the diseases mentioned in which the electro-magnetic applications are especially effectual are mental despondency, constipation, neuralgia and nervous affections, headache, mental taxation, kidney disease, rheumatism, catarrh and bronchial affections, skin affections, toothache, nervous headache, general and local paralysis, hair diseases, functional diseases of the heart, softening of the brain, apoplexy, dyspepsia, nervousness and sleeplessness, baldness and other cogeneric affections and afflictions. The pathology of these several diseases is given at some length, and the mode of application in the respective cases. A short dedicatory introduction, and a history and explanation of electricity as a curative agent, and especially the effects of the electro-magnetic hair brush are given in detail, winding up with the usual characteristic testimonials. Whatever the result of *these* inventions may ultimately be, it is very apparent that electro-magnetism as a curative agent is looming up as it never has done before, and the afflicted are availing themselves of its advantages.

REPORT of the Entomologist of the United States Department of Agriculture, for the year ending 1879, by J. Henry Comstock; with illustrations. (Author's edition from the annual report of the Department of Agriculture for the year 1879.) We are under obligations to the chief of the Entomological Department for an advance copy of his annual report for 1879, and although this is some improvement on waiting for the general agricultural report through congressional distribution in 1881, still there is room for further reform in this respect—at least it would be very desirable that the report of one year should be issued and distributed during the first quarter of the succeeding year. Of course those who are best acquainted with the practical details of the office ought to know best whether such a desire is realizable or not. The report itself covers nearly 100 pages, octavo, including five full page plates of illustrations, and an alphabetical index. No report has perhaps ever been sent out from that office containing so many entirely new species of insects, or so many in which the farmers and fruit-growers of the country are more immediately interested and more practically instructed. We must sometimes wonder that, considering the large amount of scientific literature issued from the press, and diffused throughout the country, so little of it, comparatively, is appropriated by the people, even those whom we might suppose, naturally would be hungering after such knowledge. We notice that in this report all, or nearly all, the illustrations are "original"—without regard to their quality or their faithfulness to nature—and we confess they have a freshness about them which yields a momentary relief, at least, from the monotony of those popular forms whose duplication have illustrated so many publications during the last decade. In new books people look for new pictures, even when the animals represented are the same.

"THE FARM."—How much more pacific, democratic and progressive that title than the *Ranche*, the *Hacienda*, or the *Plantation*. Perhaps there is only one other title more significant, and that is "THE FARMER"—"A title more honorable to the possessor than any an emperor could confer; for while he turns the furrow or scatters the seed he feels that he does not labor for a master—he knows that no tyrant will reap the fruits of his labor," (so far as it presumably relates to the Union.) "This is the blessing for which our fathers fought, and it is a blessing enjoyed by the freemen of many independent States, which, like so many brilliant stars' compose the constellation of freedom"—at least so the play goes—a title that comprehends much more than that of *Ranchero* or *Planter*.

These reflections have been elicited by the reception of the November number of the *Farm*; a journal for the farm, garden and household; published in the city of Dublin, Ireland; "price two pence." A remarkably well executed and ably edited quarto of 20 pages, monthly, and adapted to the civilized world, outside of "Auld Ireland." If the "Green Isle" possessed nothing else, this literary representative of its farming interests would be sufficient to give it character abroad. Its contents are solid, practical and thorough, and on the whole it is amongst the best of our foreign exchanges. God prosper auld Ireland.

SPECIMENS OF ILLUSTRATION of R. Worthington's New Juveniles for 1880 and 1881, an 8vo. pamphlet of 16 pages, each of which contains a beautiful full-page illustration, representing the following popular juvenile works: Chatterbox Junior, Sunday, Chatterbox Picture Book, Little Prattlers, Baby Mine Picture Book, Chatterbox Stories in Natural History, A Gift for a Good Child, My Own Pet's Book of Birds, Aunt Charlotte's Picture Books, Christmas Box, What Rosa Did, Little Folks' Play Book, Little Chatterbox, Little Tommy Tiptoe, The Peep Show, Little Red Riding Hood, Work, Kate Greenaway, Trot's Journey, and others of similar character. These specimens alone constitute a book that in hundreds of thousands of families of our Union would be hailed by the young folks with joy, and in point of artistic excellence would "hardly ever" find an equal. The *Chatterbox* series have a reputation that need no commendation of ours. Published by R. Worthington, 770 Broadway, New York.

BREEDERS' LIVE STOCK JOURNAL—"Economy of production and value of product the standard of merit." A royal quarto of 16 pages, published at Beecher, Illinois, by the Breeders' and Live Stock Association, at $1.00 a year. S. L. Miller, President and E. S Shockey, Secretary. No. 9, Vol. 1, (November, 1881,) has reached our table, and is replete with matter interesting, not only to breeders of live stock, but to husbandry in general. The illustrations of fat Poland-China pigs on the first page, however, are about the *maximum* of obesity without entirely obliterating the porcine form. Remove the feet, the ears and the tails, and we have three well-stuffed sacks of lard that only need a spiggot to draw it out.

THOMAS BROTHERS' MUSICAL JOURNAL, issued monthly, at No. 313 Main street, Catskill, New York, at $1.00 per year, postage free; single copies, 10 cents. This is a royal quarto of 16 pages, ten of which are devoted to the latest compositions in printed music. The *Musical Journal* is devoted exclusively to the musical literature of the period, and from the class of readers likely to patronize such a journal, it should be a first-class advertising medium within a certain sphere.

THE SUGAR BEET for October, 1880, comes to hand with its usual amount of practical sugar lore and the economical manipulation and transportation of the crop from the field to the manufactory by means of improved machinery. "Even *Persia* has a beet-sugar factory in contemplation." We must not let Persia and Russia get the start of us in the sugar business. Better more sugar and less tobacco.

MISCELLANEOUS.

The Fruit Evaporator.

Within a few years the evaporation of fruit by improved processes, under the stimulus of the current high prices for the product, has received much attention. American evaporated fruits have gained a great reputation in Europe, and now constitute an important item in commerce. The demand, market and price within the last year has added new interest and importance to the business.

Perhaps the most significant fact in this connection is, that simpler and cheaper, yet philosophical evaporators have been constructed, and are now going into use as an auxillary to the farmer and orchardist. Fruit growers should closely investigate and turn to account upon their own premises much, if not all, of the fruit that usually goes to waste or is sold at unremunerative prices. The fact that raisins are sold here for 10 cents per pound, after a carriage of thousands of miles, and evaporated pared peaches is worth 25 to 30 cents per pound, suggests at least investigation.

Seeds and Plants.

We would call the attention of those of our readers who contemplate purchasing seeds or plants during the coming season, to the advertisement of Peter Henderson & Co., New York, now appearing in our columns. Peter Henderson, the senior member of the firm, is known far and wide as a horticultural writer and authority. His books, "Gardening for Profit," "Practical Floriculture," and "Gardening for Pleasure," are now in the hands of thousands. The green-house establishment of this firm covers three acres in green-houses and employs upwards of fifty hands. Millions of plants are shipped by mail or express annually to every State and Territory. Their seed warehouse is the most extensive in the city of New York, and every order received is certain to be filled with goods of the best quality, and as they are producers as well as dealers, "everything for the garden" will be sold at low rates. Feb-3m

"Bo-Peep"

This exquisitely wrought steel plate engraving, by the well-known artist, J. A. J. Wilcox, from a painting by that world famous German artist, Meyer Von Bremen, is one of the most beautiful and artistic engravings ever published. A mother and her child are away from the dusty town for an afternoon's recreating in the "Sylvan Wild" of Germany; golden pages are added to life's book of "Happy Hours." It is a genuine steel engraving, and so excellent in subject and body that its possessor can never outgrow it—become he or she however æsthetic in art. Printed on 22x28 paper. Price $3 00. Published by R. H. Curran & Co., 22 School street, Boston, Mass. Apr-1t.

The Cooley Creamer.

This method of "deep-setting of milk" is coming into so general use, that at the recent dairy fair in New York, it was not shown as a "novelty," but took its place as a common and indispensable adjunct to the dairy. With a Cooley Creamer a dairyman is entirely independent of the weather, and his product is uniform at all times. It is in this, as well as in its convenience, that the Cooley process of setting milk commends itself to all who make butter.

From our foreign exchanges we infer that it has been quite extensively introduced into use in Great Britain.—*Albany Country Gentleman.* Feb-4m.

Inventors, Take Notice.

To any of the readers of THE FARMER who desire a patent we would refer them to William R. Gerhart, Solicitor of Patents, at No. 34 North Duke street, (2d floor) Lancaster, Pa. He has opened communication with the Patent Office, at Washington, and is prepared to push claims with promptness and dispatch. Apr-1m

Ballard, Branch & Co.

In another column will be found the advertisement of Ballard, Branch & Co. Apr-1t

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EDITED BY DR. S. S. RATHVON.

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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.

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

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*	2:40 a. m.	4:05 a. m.
Way Passenger†	5:00 a. m.	7:50 a. m.
Niagara Express	10:05 a. m.	11:20 a. m.
Hanover Accommodation	10:10 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy	11:05 a. m.	12:40 p. m.
No. 2 via Columbia	11:07 a. m.	12:55 p. m.
Sunday Mail	10:50 a. m.	12:40 p. m.
Fast Line*	2:10 p. m.	3:25 p. m.
Frederick Accommodation	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom	5:45 p. m.	7:40 p. m.
Columbia Accommodation	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express	7:25 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.
Atlantic Express*	12:25 a. m.	3:00 a. m.
Philadelphia Express†	4:10 a. m.	7:00 a. m.
Fast Line*	5:20 a. m.	7:40 a. m.
Harrisburg Express	7:35 a. m.	10:00 a. m.
Columbia Accommodation	9.10 p. m.	12:0' p. m.
Pacific Express*	1:25 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*	5:20 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.

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

*The only trains which run daily.
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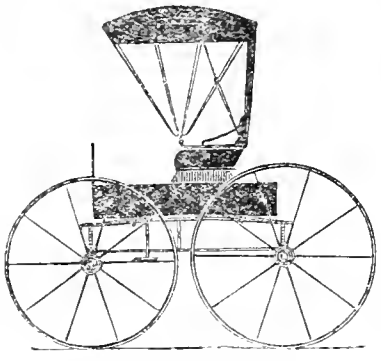

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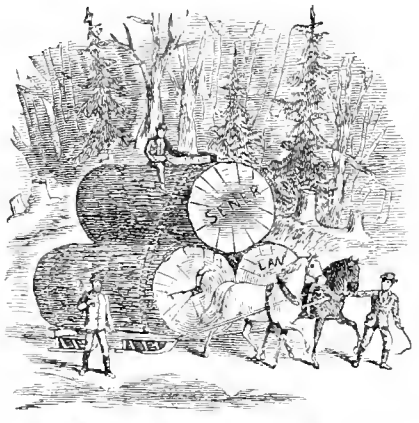

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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor. LANCASTER, PA., DECEMBER, 1880. Vol. XII. No. 12.

OUR HOLIDAY GREETINGS.

This number concludes the twelfth volume of THE LANCASTER FARMER—covering a period of nine years longer than any other distinctly agricultural journal that has ever existed in Lancaster county—and with such a *momentum*, in regard to time, it ought to have acquired a vigor that would be sufficient to carry it forward to A. D. 1900 at least; and that it may do so and gain a place at every farmer's fireside of the county and the State, has been our cherished desire, simply because we believe it *ought* to be there. We feel gratified that its existence has not been merely ephemeral, and that for ten years or more it has been recognized all over our land, and also beyond the seas, as the agricultural representative of one of the most noted agricultural districts in the Union. It is true it has not come up to the standard we raised for it six years ago—when it was changed from an 8vo. to a 4to.—but this has been purely owing to a want of pecuniary support. Some of the most intelligent and practical literary minds in the country are of opinion that it *ought* to receive that support; perhaps not so much from its intrinsic value, as from the fact that it is the offspring of an agricultural mother, who has children scattered over the whole Union—and especially in the western portion of it—in whose bosoms are still burning, and on whose memories are ineffaceably impressed the loves and the scenes of the old homesteads. In these greetings we do not intend to descant on the future, leaving the future—as we always have done—take care of itself, but refer mainly to the *present;* and a liberal and honest realization of the present involves no special anxieties about the future, or regrets about the past.

Under all the circumstances, fortunate or adverse, the farmers of our county and our State have been signally blessed during the year that is now rapidly drawing to a close; and, under God, no class of men deserve such a blessing more; and that is not saying too much, when we reflect that if it were not for earth's agricultural products we might as well all be "in the deep bosom of the ocean buried." But this conceded worth, none the less enjoins the moral maxim, "Freely ye have received, freely give," the birth of the author of which you will soon be commemorating as a specific Christian holiday. In your givings also include *for*givings, and in your gettings, *for*gettings, except such *forgettings* as might compel the FARMER to forego its kindly wishes for your

MERRY CHRISTMAS AND HAPPY NEW YEAR.

OUR CONTRIBUTORS.

Our venerable friend, J. B. G. (may heaven long preserve him) whose article on "Tobacco Stems vs. Fruit Trees," appears in another column in this number of THE FARMER, in a private note to us is pleased to say: "I think you ought to call, or request your subscribers or readers, to more frequently contribute original articles for THE FARMER. It would make it more interesting than selected articles—even controversies on any appropriate subject, if not personal, interests the reader. Even a discussion on "Bees and Grapes," or a "Moon Hoax," would be better than so much second-hand matter."

To all of which, with very little qualification, we say *amen*. If we have not heretofore on various occasions, both publicly and privately, called, requested, and even *importuned*, our subscribers and readers to write for THE FARMER, then let the words of our friend above quoted, be and remain such a standing call. Ever since our connection with this journal, we have been doing this same thing, and have gone so far as to make the distinct statement, that those who have thoughts, but are unable to prepare them for the public, we would cheerfully put them in such a form as would not be discreditable to either them or our journal. Of course, in our present financial condition, we can't afford any pecuniary compensation for such contributions—if we *could* we cheerfully *would*. It is not because our people have not light—practical, experimental light—that they do not write for THE FARMER. No community could have attained to the dimensions, the agricultural skill, the wealth, and the social position of Lancaster county, without light; but our farmers do not seem to realize the Divine injunction: "*Freely ye have received, freely give.*" They hide their light under a bushel. This may be from a want of confidence, from disability, diffidence or timidity; but, on the other hand, it may also be from indifference, apathy, indolence or selfishness. We feel that they do not realize as they ought, that the whole of life is a school—even from the cradle to the grave—and that while we are in the effort to edify and instruct others, we are edifying and instructing ourselves. No citizen of Lancaster county need be ashamed to write for THE FARMER, or to have his thoughts reflected through its columns. THE FARMER is known and read far beyond the local sphere of its home patrons, and in many places in our broad land, Lancaster county is better known through the medium of its literary publications than through any other source. If THE FARMER is not what the citizens of Lancaster county think it ought to be, it is because they have not made it so. Its main object is to be a reflex of the agricultural thought of the county, but if its citizens withhold that thought, it incidentally is a reflection upon themselves. In mechanical execution and general "make up," the LANCASTER FARMER is the peer of any agricultural journal in the land, and if it lacks in original local literature, the fault is neither in its editor nor its publisher. We would cheerfully "crowd out" all of our selected matter, if we could replace it with original contributions, but the task would be too herculean for us to write the whole paper. There is, perhaps, not a single county of the same prominence in the Union, that does not contribute more to its local agricultural literature than our county, whatever importance may be attached to that fact.

THANKS.

We return our sincere thanks to our correspondents and contributors for their literary favors during the year 1880. (We believe all our former accounts of this kind have been settled) and we are just as thankful for *our*, as if there were a *hundred*, and don't feel any more exhausted in doing so. Still, if there are any who think this too much, we are quite willing to take back the excess in "buckwheat cakes and sausages." Like the importunate politician, we are thankful for *any* favor, from a Foreign Mission down to a pair of second-handed "briches:" and we mention this here, for the encouragment of correspondents and contributors *per se*. From the literary and intellectual status of Lancaster county, we feel quite certain that there must be legions of this class, who only need encouragment to induce them to put in an appearance.

COMPLIMENTARY.

In a private business communication from the veteran editor of the *Germantown Telegraph*—the oldest and best publication, within the sphere of its specialties, on the continent of North America—he is pleased to speak thus appreciatingly of the LANCASTER FARMER:

"Such a periodical, in such a grand agricultural region, should receive not merely a paying support, but it should be realizing a solid income of such proportions as would redound, not only to your own handsome emolument, but be creditable to the intelligence and appreciation of your great county and the commonwealth." *Very truly your friend, P. R. Freas. November* 25, 1880.

We are truly grateful for such a Thanksgiving greeting from such a source, and sincerely wish that about *ten thousand* within the county, or the commonwealth, could be brought to practically respond to such a sentiment. Although we have all along been largely sustained by the philosophy involved in the old negro's invocation:

"Blessed am dem what doesn't expect nuffen,
Kase dey'll nebber be disappinted."

Still, we must confess, now as we are growing old, that something more than the gratification of seeing an agricultural journal sustained in Lancaster county, would not have come amiss. It is true, we are but a single grain in the vast sandhill of humanity, yet the smallest and most insignificant grain is composed of parts—it has length, and breadth, and depth—and those parts are functionally sustained by the attraction of cohesion—they are supported by chemical elements outside of themselves—drawn from the great reservoir of nature, or they disintegrate, or dissipate into "airy nothing."

We opine it may be a long time yet before the people of Lancaster county apprehend, appreciatingly, what they should have done in their relations to the FARMER—not in *our* time, perhaps—perhaps not in this generation. We do not regret that we have devoted twelve years of our life in attempting to build up an agricultural journal in our county, because we believe from her position in the commonwealth, and her claims to distinction, she needs and ought to sustain such a journal. We may not be the proper person to conduct it, but our connection with it is not of our own seeking. We passively permitted the editorial mantle to be thrown upon our shoulders, and being there, we could not disappoint our friends by stepping from under it until it could be more ably sustained. Whatever may transpire we have the consciousness of having, at least, attempted to discharge a pleasant duty, and if *this* and the good wishes of our cotemporaries is all the compensation we *deserve*, surely we ought to be content.

POULTRY EXHIBITION.

Of course, our readers will not need us to remind them of the approaching "Chicken Show" of the Lancaster County Poultry Association, in Roberts' Hall, Prince street, opposite the Fulton Opera House; and, that everything indicates the handsomest display of "chicken fixings," that, perhaps, ever took place in the State—within the limit of its material and means. The men engaged in it are intelligent, energetic and practical, and if the exhibition does not prove a success in every respect, the fault will not be with them. After all that can possibly be done by the most efficient management, an enterprise may signally fail, if it does not receive the social and pecuniary support of the *people*. Depend upon it, the society and exhibitors will realize the *expectations* of the public, let them also realize their estimate of the public's *appreciation*.

Since writing the foregoing we have received a copy of the *Premium list*, containing also the rules and regulations governing the exhibition, and from which we are able to

state that this *Second Annual Exhibition* will be held on Friday, Saturday, Monday, Tuesday and Wednesday the 14th, 15th, 17th, 18th and 19th of January, 1881. The list is exceedingly liberal, and the facilities to exhibitors and visitors ample and judicious. Copies of the premium list may be obtained from the Recording Secretary, Mr. J. B. Lichty, southeast corner of Centre Square and South Queen street. (*Era* building.)

HORNED FUNGUS EATERS.

Some person, unknown to us, sent us in a neat little paper box, by mail, thirteen specimens of *Bolitophagus cornutus*, three of which are males, and ten females. These are very dark brown (nearly black) insects, about ten lines in length, externally rough or tuberculated, the males being distinguished by two horns projecting from the thorax forward, and from which is derived their specific name. They belong to the Heteromorous Coleoptera, subsection STENELYTRA, and family HELOPIDÆ. They are usually found in woody fungi belonging to the genus *Bolitus*. The larvæ feed on this fungus in its softer state, and the mature beetles are frequently found secreted within the fungus in its dry state, and there they are also frequently found hibernating during the winter season. We know of no special damage they do to anything else. The *Boliti* are usually found attached to dead trees, stumps, logs, fence rails, &c.

HONEY BEES AND GRAPES.

From the proceedings of the seventh annual meeting of the "Entomological Club of the American Association for the Advancement of Science," which convened at Boston, Massachusetts, in August last, we extract the following in relation to the question of bees destroying grapes; and although, perhaps, not conclusive, yet such high authority must be our justification in our alluding to a subject which the affirmative in this locality believe was settled against the bees during the last season.

Prof. Cook read a paper on the "Contributions of Agriculture to Science."

"Dr. J. G. Morris, of Baltimore, inquired whether Prof. Cook had ever tried to starve bees, and then furnish them with grapes in order to learn whether they would puncture the grapes for the sake of obtaining the juices.

Prof. Cook said that he had not done that, but that he had placed bruised grapes before them, which they sucked, and then he had placed whole grapes before them, but they would not puncture the skin. In response to a question, Prof. Cook stated that while he had never known bees to eat meat, yet they would suck the juices from meat.

Possibly this knotty problem might be solved by some such experiment as that suggested by Dr. Morris, and yet it may not be quite certain that bees, in confinement, *would* puncture sound grapes if they *could*. On one occasion we captured a common wasp (*Polistes*,) that appeared to be "stylopized," and confined it in a glass jar, the mouth of which we covered with gauze, placing, also, sugar and pieces of sweet apples in the jar, with a view to develop the *stylops*. At first the wasp partook of the food, but when it discovered that it was a prisoner, it utterly refused to appropriate any more, and manifested great anxiety to escape, and absolutely starved itself to death, although surrounded by an abundance of food. Bees might act similarly, although they might not. The thing should have been tested last grape season, but we believe it was not. The experiment ought to be tried next season, at least, and the question settled, if possible, so that the clamor against the bees might be forever hushed if they are innocent.

Some animals can be fed and will thrive in confinement—indeed may not know or care that they are confined; but all are evidently not of that nature. About four years ago we received two live "Horned-frogs" (*Phrynosoma*) from Texas, which we kept for months in a cage, placing before them both living and dead insects, but we never could ascertain that they ate one of them; but were always trying to get out of the cage, and finally died. Again, last summer a specimen of *Phrynosoma* found its way up to Chicago, in the custody of a member of the Republican Convention, from whence it was brought to Lancaster, and donated to the Linnæan Society. We had this subject in our possession for two months, but it *would not* eat. When we first received it, it was in a fine, healthy and plump condition, appearing to have been recently gorged with some kind of food; and on examining its *feces* we discovered that it contained fragments of grasshoppers—the femers and tibias of *Caloptinus* being recognized. Having practically solved the problem involving the specific food of the "Horned-frog," we plumed ourself on being able to domesticate the animal, and instruct others who possessed these harmless pets. Therefore we placed before it, at intervals, fresh and living specimens of our Red-legged grasshopper (*Caloptinus femur-rubrum*) but it did not seem conscious of their presence. They hopped all around it, over it, in front of it, and on it, but it never attempted to appropriate a single one of them, dead or alive. As they died we removed them and introduce living ones with the same result. At length the animal seemed to have evacuated the entire contents of its bowels, and became lean, lank, limp and sluggish; but never ceased, during the two months of its incarceration, to make the most energetic efforts to escape from its confinement. Sometimes we pittied it, and sometimes we were "nettled" at its persevering obstinacy. If we took it out of its cage and laid it on our hand, on a table, or on the floor, it never made any attempt to escape, although it freely moved about; but return it to its confinement, and it would immediately manifest a disposition to be out of it, and in freedom.

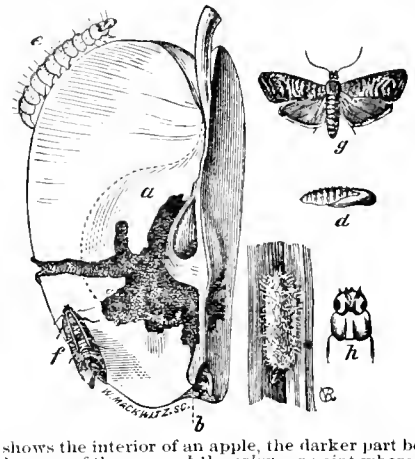
Now, if we were to forcibly confine bees within a limited space, to see whether they cut the skins of grapes or not, it is likely they would manifest the same stubbornness. Practical beekeepers know how obstinate and heady bees are when they seem to be *set* on doing just the opposite that their keepers desire.

Mr. H. M. Engle informs us that he tied paper around his clusters of grapes to protect them against the incursions of bees. In some of these he found bees and wasps, and the fruit cut and greatly damaged, and in others in which no insects were found the fruit was entire. This would seem to be conclusive, but in reality it is not—the wasps may have done the cutting, and the appropriation of the bees an aftermath. Even in those where only bees were found, the wasps not being honey gatherers, may have regaled themselves and fled. It is essential to the proper solution of the question that the bees be *seen* committing the act with which they are charged. It must be borne in mind, too, that in this experiment the insects entered voluntarily through apertures that had not been securely guarded. Had they been captured and forced in, the result might have been different. As a parallel to Shakespeare's "Let me not *know* that I am robbed, and I am not robbed at all." Let the bee not know it is restrained or imprisoned, and it is not restrained at all.

We offer these suggestions in order to assist those who propose to experiment intelligently next season, and until such intelligent experiments are made, the question cannot be regarded as settled. We are not among those who deem it impossible that bees should cut the skins of grapes and other tender skinned fruits, as is plainly set forth in our paper on the subject published in the September number of THE FARMER, page 131; but, although we have watched them "time and again," on our own premises, during the whole season, *we have never seen them do it*. We have never seen them in the *act*. We have seen them from the ripening of the early "Hartford Prolific" to the late "Isabella," flying about the clusters and alighting on them, but we have never seen them attempt to puncture them; whilst, at the same time, under the vines, scores of bees might be seen engaged in greedily extracting the juices from the rejected skins, or ruptured grapes that had fallen from the vines; and yet we do not regard even *this* as conclusive evidence in their behalf.

THE CODLING MOTH.

Our recollections of this insect, or rather of its larva, go way back to about 1822. We may have noticed it prior to that period, but we are quite sure we saw it very frequently during the winter of 1822 and 1823. In the autumn of the year first named, we first "hired out" on a farm, and continued in that occupation during the next ensuing five years, or until the month of July, 1827, and every winter at least, during all that period we saw scores of those larvæ or "apple



a shows the interior of an apple, the darker part being the burrow of the worm, *b* the *calyx*, or point where the eggs are deposited by the moth; *c* is the full grown worm; *d* is the naked pupa; *f* is the moth in its natural position at rest; *g* is the same with the wings expanded; *h* is the head and first segment magnified; and *i* is the coccoon.

worms," as they were usually called. They were not particularly regarded as a *pest*, but were rather considered as matters of course, and little or no complaint was made about them. Apples were abundant and cheap every season, especially every alternate season, which was denominated the "apple year." No one thought about a remedy to destroy them, and it is doubtful whether any one would have gone to the trouble to apply a remedy, had one been known. Among these worms may also have been the larvæ of the *Curculio*, but of this we knew nothing. To us then, they were all perfect creations, and we did not know them or suspect them to be anything else but *worms*, and able to beget other worms—indeed, we regarded the larger ones as the adults, and the smaller ones as the young. As to their eventual transformations into moths or beetles we had no suspicions, and our elders seemed to know no more about them in this respect than we did. During the apple-butter and "schnitz" making season, hosts of these lettle worms were encountered in the apples, of various shades of color, white, red, pink, and of yellowish or greenish tints. Lively little fellows they were, and when disturbed by cutting or biting into an apple, they would very actively leave their burrows and scamper over the outside, unless they were cut through or bitten into. From about midsummer until autumn, when the apple crop was gathered, the ground under the trees was usually shoe-deep with apples, and it would be safe to say that nine out of every ten of these contained at least one worm, or an unoccupied "worm-hole." Occasionally, in or about the seed cavity, we would find a whitish, sluggish worm that did not attempt to escape, and although they were shorter and more plump than the others, we had no special suspicions that they belonged to a different order of worms. Perhaps observations of this kind may have been made fifty years before we made them as a boy, and that the Codling is a very old insect. In those days we needed no microscope to examine those worms, for our eyesight was sharp

enough to have counted every tubercle and hair upon their bodies.

About this matter of sharp juvenile eyesight, we on one occasion came near getting a castigation because we alleged that we saw thousands of little white "snakes" in the vinegar, and could not demonstrate to our elders that they were there. But, to return to our subject, it really does not seem to us that there are more codlings now than there were fifty or sixty years ago, although, in proportion to the population, there must have been a greater abundance of apples then than now. It is also very doubtful to our mind, notwithstanding all the clamor raised against the codling moths, or all the remedies that have been discovered and applied to their destruction, whether their number has been greatly diminished, or, perhaps, ever will be. It seems to us that the remedy is to increase and improve the quantity and health of the apple crop. One discovery we boys made, or thought we made, more than fifty years ago, was that the *rambo* apples were less infested by the worms than any other variety. We often visited the apple bins in the dark, after we had retired to bed—for they were in proximity to our sleeping apartment up to the holidays at least—and we were always sure to select the rambo bin, because we felt that these might be eaten in the dark without the chances of swallowing worms. And yet the rambo has become obsolete, and in many places entirely extinct, notwithstanding that taking it "all in all," as an eating apple, it never has been superceded. It is true its quality becomes impaired after the month of January or February, but from early autumn up to the Christmas holidays, it was *king* in our early days. As a culinary fruit the rambo even then was considered inferior to the *vandevere* or the *grindstone*, two old varieties that have also become obsolete. The *romanite*, we thought, also shared in exemption from the codling. We thought the codling more partial to apples of a dryer and more granular texture than the rambo and the romanite.

But a change seems to have come over the spirit of our early dreams, and here we are in this blessed year 1880, almost at our wit's end to know how to circumvent the great foe of the apple crop. For forty years or more that healthful and luscious crop has been gradually depreciating, or the codling moth has been gradually appreciating, or both. And this, too, notwithstanding during all that long period untold numbers of remedies have been devised, recommended and applied to their destruction or dimunition, without apparent success as a whole. It seems almost as if there was an arbitrary purpose in this, instead of a natural consequence merely. Those who are influenced by the first proposition would entertain a strong desire to "trust to luck," and hang up the *horseshoe* as all the effort worthy to be made: but those who are influenced by the second proposition, would entertain a more rational view, and perhaps attempt to restore that equipoise in nature's economy which seems to have been lost through human intervention.

If a tree has but one hundred apples on it, and each apple is infested by one or more codlings, it becomes a calamity; but if it has a thousand, only one hundred of which are infested, it is only a common casualty and little account is taken of it; and, perhaps that is just "what's the matter." If we can increase the crop of apples, and bring it up to the olden time, there will be plenty of fruit for the human family, as well as the codling family, without the one standing much in the way of the other. This increase must be assisted by the increase of the area and the number of trees, to bring their numbers more in harmony with our increased population and consequent demand. There is great eagerness to increase the tobacco area, and the same energy must be applied to the apple.

The results of such increase, however, cannot be experienced in a day, a month, nor in a year, and *may* take a generation, and during that time, there will perhaps be a necessity to fight the codling on its own personal line or lines, and there is where the difficulty comes in, for the codling, like insects in general, has at least four distinctly marked lines or plains, upon which it may be met by its adversaries, namely, the *ova*, the *larva*, the *pupa* and the *imago*. Heretofore, battle has been made with it mainly on its third or *pupa* plane, because on this plane it is quiescent and most accessible. Various traps have been devised for its destruction on this plane, with more or less success, but its destruction here can only take place *after* it has done all the damage it possibly can to the fruit it has infested, and hence its adversaries are influenced not by the damage it *has* already done, but by what *may* be done by its progeny, involving at most, only future *prevention*. Tying hay, straw, paper, or rag bands around the trunks of the trees, removing them at intervals and passing them through a common clothes wringer, will doubtless crush the life out of all that may collect therein to pupate; but as they are very small and may find an abundance of other places, under the loose scales of bark on the trunks or branches for that purpose, these should be carefully removed, in order to make this remedy effectual. Fastening clap-boards together with a single pivotal nail or screw, with inter-spaces, and hanging them on the trees, is said to form coverts for their pupation, but these must be carefully examined every day during the summer, else the horse may be gone and only the harness left, when we come to look after them. But, prior to all this, apple growers must instruct themselves what a codling *is*, before they assume the task of destroying them; nor must they expect to meet a gigantic foe, but rather an insignificant Lilliputians.

Efforts have also been made to fight the codling on its fourth line of attack and defense—in its *imago* or moth form, but the success has not been by any means equal to combatting it in the *pupa* form. The moth is a night-flier, and is seldom abroad during the day. It is attracted by almost any luminous object, hence luminous traps have been contrived to decoy it to its own voluntary destruction. A lamp burning near an open window, during a summer evening, will sometimes draw multitudes of them to it, where they perish by flying into its flame or against the heated glass globe that may shield it. If such a lamp is set in a large, shallow pan of water, many more will be destroyed than where the pan is omitted. Such a trap on a calm evening may be set in the orchard, but this is not absolutely necessary, as a light will attract them from a great distance. Millions of moths of different kinds, and amongst them great numbers of codlings, are killed every summer by flying into or against city street lamps, or the gas-lights burning in grocery stores, and especially those in the windows, and a few find their way to the light in our *sanctum* every summer, although no orchard is very near us. Bottle traps, with wide mouths and containing sweetened water, will also attract and destroy many of them. On one occasion we had about a thousand moths sent to us that had been captured in one or two nights in such traps, and among them one-third, at least, were apple codlings. But these remedies are regarded as still ineffectual, as a whole, for the moths may have deposited their eggs before they were captured. Something was wanted that will make a "cleaner sweep"—something that will lock the stable before the horse is stolen. According to a paper on this subject, read by Prof. A. J. Cook, of Lansing, Michigan, before the Association for the Advancement of Science, at the late Boston meeting, a "new method of fighting certain injurious insects" has been discovered. This method anticipates the *pupa* and the *imago* forms, or incidentally strikes the latter in the act of oviposition. He has learned from Mr. J. S. Lockwood, of Lockport, New York, that trees thoroughly sprayed with liquid Paris Green, about the 20th of May, bore apples which were wholly exempt from the ravage of the apple codling. Acting upon the suggestion of Mr. Lockwood, Prof. Cook himself sprayed some Siberian crabapple trees on the 25th of May, and again on the 20th of June, with London Purple one tablespoonful of the poison to two gallons of water. On a careful examination, made on the 19th of August, not a single "wormy" apple was discovered, although other trees, only a few rods distant, and which had not been sprayed with the poisonous liquid bore a crop of fruit, nearly the one-half of which was wormy. The reader will observe that this remedy is intended to fight the codling on its first and second, or *ova* and *larva* planes, and incidentally on its fourth or *imago* plane, should a female happen to be oviposting. We must confess that this is somewhat marvelous to us, especially since Prof. Cook says that a few apples "showed signs of the previous work of the larva, but as no burrow extended more than one-fourth of an inch, no harm was done." From this we may infer that this spraying follows the larva up into its burrow and dislodges it. It is also claimed that from the small amount of poison applied to each tree—not more than one-third of an ounce—the cost of the remedy is very trifling. And to make sure that no danger can arise from this poisonous application, Prof. Cook "cut from a portion of the apples on a part of the tree where the poison had been applied in such excess as to destroy the foliage, one hundred of the blossoms, the portion where the poison would be most sure to lodge, and submitted them to Dr. KEDZIE for analysis, when not a trace of the poison was found." This paragraph is not clear to us. We stumble at the term "blossoms," unless by blossoms he means what apple-growers usually term the "Calyx," which is located at the lower end of the apple, and where the codling usually deposits its eggs. It may seem singular that this remedy had not been discovered long ago, especially since so much anxiety has been manifested by fruit growers in many quarters. We hope, therefore, that there may be no mistake about it, that it may not be merely incidental, but that its results may be founded upon the certain principles of cause and effect. Of course, we may suppose that such a small quantity of a weak, poisonous dilution would soon be dissipated by the washings of descending rain, and that in a very short time no trace of it would be left; but it seems to us that this carefulness to anticipate the apprehensions of people who are prejudiced against the application of poison to fruit and vegetation that is used for human food, sounds very much like the fire-test to which an iron safe (containing a live "rooster" and a pound of gilt edged butter) was subjected. After burning six cords of hickory wood on it, the safe was opened, when the rooster was found frozen to death, and the butter hard enough to be put into a lathe and turned into cane heads; evidently proving entirely too much.

What we mean by incidental results may be illustrated by a case that came under our own experience. An individual who had a fine English walnut tree on his premises, seriously infested with caterpillars, applied to us for a remedy to destroy them. After seeing them we concluded they were the *larva* of *Datana ministra*, or "Handmaid Moth." They had nearly defoliated his favorite tree, and hence we instructed him to attack them in the evening, or after dark, as they would then be likely to retire from the branches and congregate upon the trunk; or if he waited until they were ready to "moult," they would then come down low on the trunk, or perhaps on the ground, and mass themselves together, when they could be scalded, or saturated with coal oil, set on fire, and roasted. But this was too revolting to his feelings or too much trouble. Some one subsequently told him to bore an augur hole into the trunk of the tree, till it with pulverized sulphur, and drive in a plug. He did so, and within two days every caterpillar disappeared. *He* did not publish it, but he told

it to his neighbors, and it finally got into print. Remedies, whether true or false, when in print are received with a large margin of doubt, if they are not totally disbelieved, but when verbally communicated they are at once credited. It was so in this case. Sundry caterpillar infested trees were bored and sulphured and plugged, but the caterpillars would not disappear "worth a cent." Why? Because they were not yet ready—they were not yet matured. Had the first experimenter waited two days longer, his caterpillars would have disappeared without the hole, the sulphur or the plug. These caterpillars, after they perfect their larval state, come down from the trees, burrow into the earth, pupate, and come forth a moth the following season. Such incidental results are often credited as genuine, and obtain a wide circulation before they are discovered to be only false appearances. We do not pretend to say that Mr. Lockwood's and Prof. Cook's experiments are of this character, but Prof. C. himself seems to express a doubt that they possibly may be, hence he says: "If future experience sustains the conclusions as to the efficacy of this remedy, it will be a very important discovery;" and so indeed it will be; not only on account of its efficiency, but also on account of its accessibility and its inexpensiveness; for in many instances, if we even *know* what will destroy noxious insects, we find a difficulty in gaining access to them.

For many years Lancaster county has not grown enough of apples for the consumption of her own citizens, and the deficiency in supply has been made up by the importation of apples from New York, Ohio, Michigan, and other localities. It seems strange to see farmers in this prolific county ordering from half a dozen to twenty barrels of apples for their home consumption during a single winter season, but such in many instances is, and long has been, the case. Their trees bloom profusely, but along comes a furious northwest wind, driving a cold dash of rain just about the fertilizing period, and away goes the apple crop with it. Or the fruit sets encouragingly, but is attacked by the codling and the curculio, and soon begins to gnarl and fall. In importing apples, they also often import something else, and that something is codlings and curculios. So far as concerns the curculios, they all likely perish, but this is not the case with codlings. We *know* from experience that some of these foreign apples are infested by the codling. It may not be general, but it is at least occasional. How frequently, we know not, for we can only take cognizance of what comes under our own observation, in our individual consumption. If these apples are kept in a cold place, of course, the functions of the worms are suspended, and hence at any time during the whole winter, when the fruit is transferred to a warmer temperature, lively codlings may be found. It is true, much of it is exempted, but some of it is badly infested. As these worms mature and the temperature rises, they come out of the apples, and either escape through the fissures in the containing vessels, or spin their tiny cocoons in some protecting crevice within them. On one occasion, in late spring, about fifty escaped from a barrel in which we kept apples during the previous winter. It is true, that we have always had codlings enough of our own in Lancaster county, but if we never had had any, this would have been an effective means of introducing them. The Codling Moth (*Carpocapsa pomonellæ*) is a foreign insect, and it is by some such means that it was first introduced into this country. We would suggest that as soon as one of these barrels is emptied, it be inverted over a blazing fire of straw, shavings or paper, in like manner as coopers do, in the process of manufacturing them. If even only a few or no codlings are in them, it will dry them out, destroy the mould, and make them fitter for any future use, even if they are only to be eventually used for "kindling wood."

Send in your Subscriptions for 1881.

TOBACCO PESTS—No. 5.

Perhaps the most formidable foe to the tobacco crop is what is now generally and appropriately becoming known under the name of "Horn-worm." There are too many worms that now infest the tobacco to rely implicitly on the indefinite name of "Tobacco-worm." Tobacco was cultivated in the Southern States long before its introduction into the Northern States; and therefore the people of that region, from the very beginning, called it the "Horn-worm," in order, perhaps, to distinguish it from other worms that also infested the tobacco crop.

The Most Dangerous Pest.

We regard this as the most formidable, by virtue of its great size and the quantity of provender it is able to consume in an incredibly short space of time. These Horn-worms have two very distinct lives or phases of life, and no doubt many people are well acquainted with them in one phase who are unable to recognize them in the other phase: and this dual character of their active life runs parallel, with a few exceptions, throughout the entire class insectæ. It is true that in the unexceptional orders there is a medial phase, but it is not an active one, except so far as it is instrumental in effecting their metamorphosis from the lower phase to the higher.

The Horn-worm illustrates as high and perfect a type of insect transformation as is known to science, although, as a whole, it does not typically represent the CLASS to which it belongs. In the trinal forms of *larva*, *pupa* and *imago*, the lines of demarkation are as distinct as if they belonged to the three different insects remotely separated from each other, and the individual who is able to recognize them in these three forms is thrice armed in his warfare against them. In the larva form it is called the "Horn-worm," because it is then a *worm*, and on the hind end of its body it has a well developed *horn*. And although in this form it undergoes a series of changes in its progress towards completion, yet it is still a devouring worm, and in this form does all the damage to tobacco or any other plant it may be feeding on, and after each successive moult it increases in size and becomes more voracious.

Not Always Recognized.

I am satisfied that there are some people who are not able to recognize it outside of the worm form, for it is not very long since some, who ought to have known better, entertained the opinion that the "grasshopper" was the parent of the Horn-worn; and during the present season the moth itself was sent to me as something new—something that had never been seen before. After the Horn-worm has attained its full size, when it is from three and a-half to four inches in length, it is of a greenish color, and has a row of oblong diagonal whitish spots along its sides; it stops eating, comes down from the plant and burrows into the ground. Here, in a few weeks (sometimes only a few days), it passes into its *chrysalis* or *pupa* state, when it becomes of a brown color, pointed at the hinder end; the front end becomes blunt and has a long sheath-like appendage, bent from the head to the chest, like the handle of a jug. This handle is peculiar to it and all those of the same genus, and encloses its long spiral proboscis or sucking apparatus.

Development of the Moth.

The chrysalis of the Horn-worm remain in the earth during the winter and until late in the spring, the moth evolving during the month of June, later or earlier, according to special or other local circumstances, some alleging that there are more than one brood during the year, and others holding a contrary opinion. It is not necessary to discuss this question here, especially since there are appearances that equally favor both views. Farther south there is probably more than one brood, owing to a more protracted warm season, but under any circumstances, the broods even of known single-brooded insects may become so scattered and diversified that there may appear to be several broods, when in reality there is only one. Insects that hibernate in the pupa state may become deceived by warm weather late in autumn or early in spring, a circumstance that is well known to those who have paid any attention to their study. In their transformations and development they are greatly influenced by both heat and cold—the one accelerating, and the other retarding their progress. In single-brooded, or annual insects, there is no month more prolific in their evolutions from the pupa state than the month of June, and this is also true of those that are biennial, triennial, quadrennial, quintennial, or any other period—even those that are septemdecennial. The "fly" of the Horn-worm comes forth generally about the middle of June, and from that date to the end of it, or even as late as the middle of July. It is then a large gray moth with a robust body, marked on the sides with rows of large yellow spots. The body is about two inches in length, and tapers to a point, and the wings expand from five to six inches. In England this moth is very generally called the "Hawk-moth," but there is nothing of the Hawk in its character. Others call them "Humming-bird moths," because, like a humming bird, they poise themselves on their wings before a flowering plant, and introduce their probosces into the flower cups and extract the nectar therefrom. In Lancaster county we have two specimens of these Hawk-moths, the *Sphinx* (*Macrosilla*) *carolina*, and the *quinquemaculata*, or the Southern and Northern sphinx. We are a middle region, and have both species, but farther South, it is said, they have only the former species, and in the North the latter.

Life of the Hawk Moth,

These moths run and are concealed during the day, and come forth in the evening in quest of food and to deposit their eggs. They are partial to the flowers of the "Jamestown weed," but do not confine themselves to it, as I have seen them frequently hovering about the flowers of various species of *convolvuli*. After their nectar feast they retire to the tobacco fields and deposit their eggs. These are deposited in small groups here and there on the tobacco leaves, and this is continued for several days, or until all are deposited; and this accounts for the different sized worms found on the plants at the same time.

Methods Employed for its Destruction.

This Horn-worm is perhaps coeval with the cultivation of tobacco, and has always been regarded as its main enemy, and many have been the remedies resorted to for its destruction; but, notwithstanding all that have been tried, it is still the chief and most conspicuous enemy. The commonest, most universal and most reliable remedy has been hand picking. Indeed, the old tobacco growers know no other, except the training of turkeys and geese as auxiliaries, and it is still continued. Knowing its partiality for the Jamestown weed, some progressive planters have planted it in promixity to the tobacco field and have stationed persons near them armed with paddles to strike down the moths while they are engaged in sucking the nector from these flowers. Where this system was vigilantly followed up, there was fewer worms to be picked from the plants. Others introduced an active liquid poison into the flowers, and the moths fell victims to their own insatiate voracity. Although both these remedies were progressive, they were not entirely effectual, nor did they displace hand-picking. Some of the moths may have escaped, and others may have deposited their eggs before they fell victims to either of these remedies. Various traps to capture the moth were also invented and amongst these is one by Mr. Gibble, of Mount Joy, Pa., which was illustrated and described in the LANCASTER FARMER for June, 1880, page 82, which, according to the testimony of those who used it, seems to be satisfactory in its results. But, of course, this is also liable to the same draw-

back as the two remedies before mentioned. Sprayin gthe leaves with liquid poison from below as well as from above, in order to destroy the young worms just hatched, would be useful as far as it goes, but a close examination of the plants and the removal of the eggs before they are hatched, would obviate the necessity of poisons. These worms are often perpetuated through negligence.

I am informed from a reliable source that some tobacco growers, when they cut off and house their crops, merely shake off what worms may be on the plants, without killing them, and I feel persuaded that many of those carried over from one season to another are among those thus "severely left alone" every autumn. This is short-sighted if not selfish. It is practically saying—"I have secured my crop, and I dont care now what becomes of the worms. But it is "sowing the wind," only to "reap the whirlwind" at a later day. It is perpetuating an evil that then and there might be much abated by prudently killing all the later worms.

QUERIES AND ANSWERS.

THE CATALPA.

I notice that the timber question is agitated more or less over the Eastern and central States of the Union, and that in Illinois the planting and cultivation of the *Catalpa* is recommended as one of the most valuable trees for vigorous and rapid growing. Its timber is said to make excellent and durable railroad ties, fence posts, &c. Will some one please give a description of its growth, and the quality of its wood, and especially for building and cabinet purposes? I have long had a tree growing on my premises known as the "Bean Tree," by most people. Others call it the *Catalpa*. It is an ornamental tree, late in its spring foliage, has large leaves, large clusters of beautiful flowers, and blooms in July.—*L. S. R., Oregon, Pa., Dec.* 15, 1880.

The first Catalpa tree we had any knowledge of stood in front of Martin Kendig's drug store, in the borough of Marietta, in what was known as the Main or Market street; and it was also called, by the boys at least, the "Bean Tree," and by some of them the *cigar tree*. Who planted it there, we know not—probably Mr. Kendig himself, more than sixty years ago—but we believe no one suspected it had any special merit as a timber tree. The wood seemed soft and brittle, but it still may have been durable. Neither the trunk nor its branches were very remarkable for their symmetry, but when it was in its summer foliage and bloom, it was "a thing of beauty." It was still in its prime when we removed from the borough, two and thirty years ago. This tree belongs to the BIGNONIACEÆ, or Bignonia family, (Trumpet flowers). There is but one species (*Catalpa bignonioides*) but there are said to be varieties of it. The generic term is the aboriginal name, and is literally interpreted "Indian Bean." We have often noticed it growing wild along the Schuylkill, near West Philadelphia. If it turns out to be a valuable timber tree, an interest will attach to it that had no existence before. The "cotton wood" (*Populus monilifera*) belonging to SALICACEÆ, or Willow family, is being planted in the far west, as a rapid growing timber tree.

CAT LICE.

HINKLETOWN, PA., Nov. 27, 1880.

DR. S. S. RATHVON—*Dear Sir:* Enclosed find microscopical drawing of a louse found on a cat. As I have no knowledge of entomological terms I cannot describe it. If you are able to recognize the species from the rude drawing, would you please answer, giving scientific name, order, etc., and telling how they can be destroyed, as cats which are infested with them do not long survive. I immersed the louse in coal oil, and afterwards in lard, and it still survived.

As the specimens are so small I do not know how to send you one safely. I trust you will be able to recognize it from the drawing.

Hoping I may not be intruding, I remain—*Yours respectfully, L. J. Miller.*

I regret that I am unable to give you any really specific information on the subject of *lice*, never having made them a special study. When I attended school, about sixty years ago, I had some practical knowledge of *Pediculus capitis*, and had also seen specimens of *P. Vestimenti*, but I knew then nothing about them scientifically.

It is now generally conceded that lice belong—or ought to belong—to the hetoropterous HEMIPTERA (Bugs), and the family PEDICULIDÆ. Perhaps, in all animals infested with lice the species differ, so that their name must be "legion."

Your figure agrees very nearly with Dr. Pacard's figure of the "Cat-louse." Your magnifying power being greater than his has brought out more prominently the minor parts, but *there* is the pentangular head, the trilobed antennæ, the cone-shaped abdomen, with its nine segmental divisions, the three thoracic segments, and the crab-like feet. The bristles, the claws and the lateral spines of the penultimate segment are either sexual or due to a higher magnifying power. Dr. Pacard refers the Cat-louse, and the Goat-louse to the genus *Trichodes*, without any specific reference, as the species was probably not yet determined when he wrote "Our Common Insects." Many insects in our country, and especially animal parasites, have been introduced from foreign countries, and hence American subjects must be compared with foreign, before the species can be determined. Some foreign naturalists, however, contend that the "bed-bug" was introduced into Europe from America, and perhaps base their opinions on the alleged fact that *Cimex lectularius* is found in the Western States, under the bark of forest trees.

Denny, in his work on the Lice of Great Britain, says, on the authority of Herodotus and Antiochus Epiphanes, that the Dictator Sylla, the two Herods, the Emperor Maximian, and Philip II. died by a disease called by physicians *phthiriasis*, caused by lice. So it is likely that cats may die a similar death, when infested by lice. Chickens and especially sitting hens have been known to die from the same cause. In the case of chickens, flour of sulphur has been used as a repellent or expellent of lice, and probably it would have the same effect upon cats. But if your subjects were invulnerable to coal oil and lard, perhaps nothing short of igniting the fluids would expel them, but this might be unpleasant to the cat. Sometimes substances comparatively harmless to one animal, or class of animals, is a certain remedy for the expulsion or destruction of others. It is now claimed that *Pyrethrum*, administered as a powder or liquid infusion, is a better insecticide than either London purple or Paris green.

I may say in conclusion, that although cat lice and goat lice may differ generically from human lice, I am doubtful whether they should be referred to a genus named *Trichodes*, as that name is preoccupied in the order COLEOPTERA. They seem to be nearer to *Goniococtes Bonrettii*, the louse of the common barn-yard fowl. In fact, the lice of North America are not yet scientifically "worked up," owing perhaps to absence of sufficient material. Naturalists were for a long time uncertain where to place them in systematic classification, and they are not in accord even now, but it seems to be agreed by many that they constitute a degraded family of *Hemiptera*, and that they penetrate the skin and suck blood, instead of "biting," as it is usually termed. We don't wonder that they haven't been more thoroughly studied, for it excites an itching in us, all over, only in writing about them.

CONTRIBUTIONS.

FOR THE LANCASTER FARMER.

TO TEST EGGS.

WEST CHESTER, Nov. 26, 1880.

PROF. S. S. RATHVON.—*Sir:* I see in THE FARMER, the way to test eggs—whether they are good or bad—is to put them into water, and if the big end turns up they are bad. I will here say that *all* are bad that float in water, unless it is made sufficiently strong with salt for pickling beef or pork; this being the mode for testing brine for that purpose, and even then no part of the egg will be above the brine, except the air bubble, and this will show the exact position of said bubble, and also how large it is. It is at the appendis, or point of the big end of the egg, or a little further down, and the farther down from the top it is, the better will those eggs be to sit for good laying hens. The nearer the bubble is to the point the better will such eggs be for vigorous cocks. The yolk is hung in the middle by two spiral cords, twisted in contrary direction. By this means the heavy side is always downward, the air bubble being on the biggest side. This is the proper way to test eggs for setting or to pack away for long keeping; and, with the heavy side down, as then there will be no strain on the vital parts. I have kept eggs by this plan a for a month, and afterwards hatched 11 out of 13. They had been kept in pickle for 20 minutes before laying them away, as an experiment. An egg is hard to spoil from hatheing, if you do not shake it endwise, so as to stretch the spiral cords.

I will here add a receipe for keeping eggs. Lay the heavy sides downward (as I have above stated) in an earthen vessel—one that is porus or drips water—dissolve two quarts of salt in sufficient water to slake one peck of lime to a thick whitewash; when cool, pour it on the eggs; set them in a cool place. The water will drain out, leaving them air tight. They will be fresh twelve months afterwards.

Yours truly,

WM. J. PYLE.

FOR THE LANCASTER FARMER.

TOBACCO STEMR vs. FRUIT TREES.

EDITOR OF THE LANCASTER FARMER: Many years ago I frequently passed by an orchard which I then thought did not look as flourishing as it ought, as the ground was rich, but a stiff sod of grass on the surface. The trees appeared to lack some nutriment that healthy trees required. Now a few years since I noticed that tobacco stems had been placed around the stems of the trees, probably a wheelbarrow load to each tree. This last summer I particularly noticed these trees, and they had quite a different appearance, though the ground was still covered with a stiff sod. The foliage was much darker green, and the appearance of the trees more healthy and thrifty.

Now was this change owing to any manurial quality in the tobacco stems, or was it owing to the mulch, thus keeping the soil around the trees cool and moist or loose? This appeared to be on the principle of a no cultivation as advocated by the editor of the *Gardeners' Monthly*. Simply as a mulch, I believe it will greatly benefit the trees, but will these stems thus applied not also have a strong tendency to keep the borers away, and it may also be a preventive of the codling moth?

Nearly all farmers in Lancaster county grow tobacco, and generally spread the stems over the fields, where they soon rot and mix with the soil, possibly of not much value as a manure, would it not be a better plan to pile these stems around fruit trees, as the gentleman above noticed had done? Even as a mulch it would improve the trees, but, as I believe, it would also keep the borers from the roots, and probably the codling moth also. Peach trees especially are very much injured, and frequently killed by borers if neglected, and the borers left to do their work of destruction.

It must, however, be remarked that field mice are very apt to take shelter under these piles of tobacco stems, and make sad work on the bark of the trees during the winter if there are any of these pests about, but if the orchard is kept clean of weeds, as it should be, there will not be much danger of field mice.—*Respectfully, J. B. Garber, Columbia, Lancaster Co., Pa.*

For The Lancaster Farmer.

PRIMÆVAL FOREST TREES.

I notice that the essay on "Forest Trees," by Prof. Thomas Meehan, brought out a discussion at the December meeting of the Lancaster County Agricultural and Horticultural Society; the question being, "Was Pennsylvania a Forest Country?" Prof. Meehan seems to have advanced the opinion that it was not. I claim to know something about the early settlement of Lancaster and Lebanon counties, which may compare more or less with the rest of the State. My ancestors were among the very first settlers of the counties of Lancaster and Lebanon, and brought there the first flour and corn meal from Wilmington, Delaware, on horseback. I still live on what was called, 150 years ago, the "Peters Road," and traveled by the Indians. Peters was a trader amongst the Red men of the forest, and said road is still the dividing line between the townships of Penn, Warwick and the Earls on the north, and Manheim and the Leacocks, on the south. The country then was a dense forest, but not a heavy timber country. Heavy timber was only known along the streams of water, or swamps and creeks. The uplands were burned over occasionally, if not annually. The age of the majestic forest of the present period, generally ranges, by counting the annual growths from 150 to 200 years. No general and extensive forest fires are likely to have occurred after the year 1680. The Indians doubtless feared punishment from the Philadelphians after that period. Prior to that date the frequent forest fires prevented the land from becoming heavily timbered. The first settlers designated the different settlements by different names. A large tract north of Neffsville, and especially that part north of Lititz Springs, and between Middle Creek and Shoneck, was known as "Grubenland"—a place overgrown with small trees, so small that they were dug out instead of being cut down. A very small tree was called a *grub*, hence the name of *Grubenland*. In Lebanon county, along the Reading and Harrisburg pike, north of Myerstown, the country was known as the "Ground Acorn" district, and to this day is called sometimes by the old local inhabitants "Grund Eichlen Land." It was overgrown with small "scrub oaks" south of the pike. It was known as Grubenland all the way to Shaefferstown. It was also a country of very small timber. The first settlers from Penn township, at Mount Vernon, could overlook the small forest trees between there and Lexington, and could see the cattle grazing on the hillsides and in the bottom lands, where the Brubakers and the Bombergers now reside.

That the forest is decreasing at a more rapid rate than ever before in the history of the country, is no longer a doubtful question. Since the introduction of steam, and the use of railroad ties, the Grubenland described has become, in time's relentless course, shorn of the good timber that had been permitted to grow up upon it after its first settlement, and which is now nearly all destroyed, and the prospect for a new grubenland is very remote indeed. There is not the least doubt that a necessity exists for the replenishment of our forests, and perhaps nothing but a timber panic will ever induce the present and future generations to go to work earnestly and plant trees. The general government itself pretends to encourage tree culture, but at the same time it encourages destruction instead of construction in this direction. "Young America" is more interested in the former work than the latter. The first question asked is, "does it *pay*?"—not even in the near future, but it must pay *here and now*, or they will have nothing to do with it. A vast deal of timber is wasted through a mistaken policy of the government itself. It requires many thousands, if not millions, of feet of lumber to supply the demand for cigar boxes alone, and this is literally destroyed. These boxes by proper management could be all reused. It is the same in regard to cotton spools. Both of these articles could be collected and preserved for future use. A free country is surely the greatest boon that can be enjoyed by a free people; but freedom should be *used* and not *abused*. The same provision should have been made in America that has been made in Europe by the descendants of an oriental race, to the effect, that a certain percentage of the first settlements was to be and remain as a perpetual forest, hence Europe is better secured against a timber famine, than our eastern States of America. The first settlers were practically taught that lesson in Asia, from whence they had emigrated. A great part of the old Eastern world, including Egypt, was denuded of its timber and ultimately abandoned as barren deserts. In some parts the soil would have been rich enough to grow timber, but it was neglected by a careless and indolent race, who, at this day are content to use the droppings of their camels and their donkeys, as fuel to cook their daily meals.

The subject of forest cultivation is being at this time agitated all over Egypt. The reigning Khedive has taken an interest in the question, and forests have been replanted in many districts, which is causing quite a revolution in the country. More rain is falling there than formerly. The forests have brought soaking rains to refresh the soil, stimulating it to bring forth its increase as in the olden times long past.

I do hope that we Americans will wake up to the importance of the subject before the total destruction of our timber takes place—before we become destitute of wood for fuel, and timber for building purposes, and rain to moisten the earth and insure a continuance of our crops.

It is not the question at this time, whether the absence of "Grund Eichlen," our "Grubenland," and our majestic forests, have caused our wells and water springs to "dry up"—wells that had never been dry before within the memory of the "oldest inhabitant." Streams are now dry that never were known to have been dry before. Is it not then of some importance that we make an effort in time, looking toward the replenishment of our timber lands—and thus anticipate a timber panic.—*Warwick*.

No doubt "Warwick" is sounding a rational and charitable alarm, but it is to be feared that owners of lands are like the man who, when lying abed, replied to the admonition that the house was on fire, by reaching forth his hand and pressing it against the wall of his chamber, and expressing the opinion that there was no danger, because he felt no heat. Moreover, so long as men make the manufacture of cigar boxes and cotton spools a *business*, so long will they encourage their extravagant consumption, panic or no panic. Most people in this world live for themselves alone, and if their occupations only "piece out" their own day and generation, they give themselves little concern about those whose lot may be cast in the future. This is the stubborn and inhuman aspect of our humanity, and it will take a long time before we are able to subordinate it to the higher dictates of charity.

Essays.

ESSAY ON WHEAT CULTURE.*

Although wheat is considered the staple crop in this county, it is perhaps, the most uncertain crop we grow. The fact that it requires almost a year to grow and harvest a crop of wheat, and that it is liable at any day during that time to be badly damaged, or indeed, totally destroyed by the elements or insect enemies, might almost discourage us from raising it. It is a crop, however, that finds a ready market every day in the year, and one need not go far to find a purchaser, although the price may be low, as it is at present. The straw is so handy to have about a barn that no farmer in this section would know how to do without it.

Every farmer knows that it requires a good rich soil to grow wheat, but no one knows, I apprehend, just how much manure or fertilizer to apply to his land. The quantity that produces the heaviest crop in a dry season is entirely too much in a wet season, as we all have learned to our sorrow, when the luxuriant growth of early spring falls and rots under the soaking rains of June. In such seasons the thriftless farmer who "manures little and tills less," frequently harvests the best crop. Even in the last season, though a dry one, the lodged wheat was poorly filled and of inferior quality. In view of these facts anything that tends to put the growth of this great cereal more completely under our control is welcomed by wheat growers.

During the last few years the hoeing or cultivation of wheat during its growth has been much discussed in the agricultural papers. It is held, and with plausibility, by the advocates of cultivation, that wheat will respond to the stirring of the soil as readily as corn or any other "hoe crop." It is maintained that thorough tillage in the spring will bring up a thin stand of wheat to a good crop. On the other hand it is held that a too vigorous growth can be checked by deep and close cultivation. In other words, root pruning will direct the forces of the plant to the formation of grain rather than the excessive growth of straw. And then again it is said the air and sunshine can more readily perform their functions when the rows are farther apart.

I drilled my first piece of wheat for cultivation in the fall of 1877. These two acres were drilled with an ordinary "Farmer's Friend" drill with the alternate spouts shut off. The narrow points were taken off the hoes and wider ones substituted so that the wheat was distributed in a broad row at least twice as wide as a common drill point. About seven pecks of seed per acre were used. This lot was cultivated four times during the following April with a two horse cultivator that was constructed expressly for the purpose, and it worked admirably. The wheat looked remarkably well at this time, and a good many visitors came to see the "cultivated wheat." As harvest drew near and the crop became fully matured experienced farmers doubted whether it was any better than the rest of the field which was drilled in the ordinary way, and not cultivated.

This piece of wheat was harvested and stored separately with the intention of thrashing and comparing it with the uncultivated portion; but the insatiable appetite of a steam thrasher took all into its hungry maw and the two lots were one. There was nothing, however, in the harvesting or handling of this wheat to warrant the belief that it was any better than the unhoed portion of the same wheat.

This field of wheat, including the experimental lot, was estimated to yield forty bushels per acre. It will be remembered that the harvest of 1878 was a good one.

In the fall of 1878 I again drilled about seven acres for cultivation. It comprised portions of two fields. The fall and winter were unfavorable and the spring excessively dry. The ground became very much cracked and the cultivator left the ground in a rough, cloddy condition. Finding that further cultivation would be of no benefit, I waited and hoped for rain, which did not come, and the wheat got but one hoeing. There was no perceptible difference between the hoed and unhoed portions, and it was all harvested together.

Nothing daunted by these failures, I again in the fall of 1879, drilled in five acres for cultivation. This was cultivated on the 10th and again on the 22d of April, the ground being in a very favorable condition for tillage. It seemed to take on a darker greener hue after each hoeing, but when the heads were formed

*Read before the Lancaster County Agricultural and Horticultural Society, December 6, 1880, by John C. Linville, Gap.

competent judges failed to see that it was any better than the part not hoed.

One fact in connection with the first and third of the foregoing experiments is worthy of notice. The wheat in each of these cases was worse rusted than the adjoining wheat. A rank growth and broad dark green leaves seem to invite rust and mildew. I think an excess of nitrogenous matter in the soil will induce rust by forcing an excessive growth in very hot weather. Perhaps the stirring of the soil liberated ammonia and caused the mischief.

I will forestall criticism on this article by saying that these experiments were not conducted with that precision which should have been used. Of course the lots ought to have been surveyed and their products compared with corresponding lots not cultivated. These details cost time and money, and the increase of crop in either case was so small, if any, that I was not encouraged to carry it further. It is quite probable that hoeing wheat on a different soil, or on the same soil under different circumstances, might give better results.

It is a sore trial to have one's cherished convictions and fine-spun theories rudely demolished by actual experiment, but if we would be honest in our reports, we must make public our failures as well as our successes.

I conclude by saying that I did not drill any wheat for cultivation this fall. My cultivator, gotten up at considerable expense, is consigned to that limbo of discarded patent churns, washing machines, bee hives and other worthless and impracticable machinery found on the premises of every "progressive" farmer.

SELECTIONS.

GREEN MANURING.

Many and varied are the attempts, in this intelligent age, at restoring fertility to the soil. Among the successful methods green manuring stands out prominently, though it is by no means a new device, since the system was practised by the Romans over two thousand years ago. While not proposing to discuss the whole subject, which would require a volume, yet a few points deduced from practical experience may be presented with benefit to the farmer. The benefits of clover for this purpose are fully recognized. Occassionally rye is grown for green manuring, sowing it late in August, or more commonly from September 1 to the middle of May, thus growing a large bulk of valuable fertilizing material during a period when most of the farm lands are lying idle.

Without discouraging the practice, yet we think rye possesses a value above that of ploughing under simply as a fertilizer. If sown in August or September, sheep might be turned upon it in November, feeding down the growth, though care should be exercised not to feed it too low. If the farmer has a few sheep which he desires to finish off before winter, rye would make an excellent pasture for such a purpose. In April the rye would start, so that in a very short time the ewes and lambs could be turned upon it and fed till the time for ploughing in the rye for another crop. True, there would not be so large a growth to turn under, but there would be a greater weight of roots and a thicker herbage, because the rye would tiller out more when fed in this manner than if it was allowed a continuous growth from the time of sowing. Again, the droppings of the sheep would aid greatly in fertilizing the soil. The rye would also start an abundance of milk with ewes, while the lambs would fatten rapidly. By the time the rye was eaten off the grass in the pastures would have obtained a good start, so that the lambs, if they should not be wanted for the butcher, would make good size for future stock. Finally, the wool would make excellent growth from such feed and the size of the fleece would be increased, the staple being long r and stronger in consequence thereof.

Our eastern farmers have been trying many devices for procuring additional supplies for food for our dairy herds and beef cattle. Is not some available method for adding to the feeding material for our flocks of sheep worthy of careful consideration? Is there any other way in which the fertility of many of our hillside farms can be restored at so low a cost as by increasing the number of sheep? Raising mutton and wool in larger quantities than at present will secure the financial prosperity of the farmers of this section. It is quite common in England to turn sheep upon wheat in the fall; they eat it down causing it to tiller more, while their trampling upon the ground tends to press the earth more closely against the roots, preventing them from being thrown out by the frosts in winter and spring. Their droppings enrich the soil, and a heavier crop of wheat is the consequence. If rye were allowed to ripen its seed a heavier crop would be the consequence of its having been eaten down in the fall by sheep. Sometimes wheat is eaten off in the spring, and so might the rye; yet whether this should be done or not would be a matter for the farmer to decide, according to his individual surroundings. But one thing is very certain—rye would make an excellent crop to turn under after having been eaten off by the sheep both in fall and spring. Let every farmer whose circumstances will permit determine to add a flock of sheep, large or small, to his farm stock, investigating the question of cheap and available feeding material, profiting by the experience of thousands of British farmers who have added to the fertility of their acres, as well as to the length of their purse, through intelligent sheep husbandry.

ABOUT TOBACCO

The following facts respecting tobacco will be of interest to our readers:

The consumption of tobacco is increasing very rapidly at home and abroad. The same population requires a larger amount year by year. Foreign countries do much to encourage the production of most farm crops. But the reverse is true in relation to tobacco. As most of them derive much of their revenue from a tax on tobacco, they restrict or entirely prohibit its production. This circumstance does much to encourage the growing of tobacco in this country. Here there is a tax on the manufacture and sales, but no restriction on the production. This tax often amounts to more than one-fourth of a revenue derived from all internal sources, and is greater than that derived from any one article, except distilled spirits.

Tobacco has been a source of immense wealth since the first settlement of the country. The colonists of Maryland, Virginia, and the Carolinas became wealthy by the cultivation of this crop. Land in Connecticut and Wisconsin that is adapted to the production of tobacco sells higher than any in the vicinity of it. When a locality establishes a reputation for its tobacco, land immediately becomes very valuable. Tobacco culture demands a large amount of labor, much of which may be performed by persons who can not do heavy work. It is accordingly a good crop for persons to cultivate that have much help but a small amount of land. The production of tobacco on a large scale in any vicinity generally furnishes a demand for a large amount of labor.

Tobacco has been raised with a greater or less degree of profit in every State in the Union and in every Territory except Alaska. The quantity of product depends almost entirely on the natural richness of the soil and the manure that is applied to it. Its price depends on the quality and variety all the way from two to three cents to as many dollars per pound. The quality of tobacco depends partly on the soil and partly on the climate of the region where it is produced. Tobacco of very high or rank flavor is, with very few exceptions, produced in the Southern States, where the weather is warm and the growing season long. Perique tobacco, the strongest variety cultivated, is grown only in a single parish in the State of Louisiana.

The tobacco produced in the States lying about midway between the great lakes and the Gulf of Mexico has a rank growth and high flavor. It is used chiefly for chewing and the manufacture of inferior, strong cigars. It does not command a very high price, but as the product is unusually large, it is a profitable crop. Tobacco grown some three hundred miles further north is of milder flavor and is better adapted to the manufacture of cigars. That produced in the valley of the Connecticut river has quite large and very thin leaves, and is admirably fitted for coverings of cigars. It commands a high price and is in great demand both at home and in foreign countries.

It is likely that there are hundreds of localities in the territory embodied within the United States in which a pound of tobacco was never produced, but that were capable of producing a better article than was ever produced anywhere in the entire country. The discovery that tobacco could be grown in the valley of the Connecticut river was purely accidental. So was the discovery that very good tobacco could be produced in several counties in southern Wisconsin. So was the discovery that the Perique tobacco could be raised in a peculiar spot in Louisiana. In each of these places some one happened to plant some seed, set out a few plants and was astonished at the result. The knowledge becoming known, hundreds hastened to avail themselves of the profits of an important agricultural industry. The discovery in each case cost the maker only a few cents in money and the expenditure of a few hours' time. The value of it can scarcely be estimated by figures, as its full benefits can only be realized in the distant future.

What is demanded by the tobacco interest is a systematic series of tests conducted by experts in every portion of the country. The experiment should continue during several years, because a trial during a single season will determine very little. It may show that the soil is capable of producing the plant, that the seasons are long enough to mature it, that the prevailing winds are not of sufficient violence to tear the leaves, and that the quality of tobacco is very fair. It may show, in short, that the crop of tobacco is equal, both in quality and quantity, to that from which the seed was obtained, no matter where it was grown. These things, however, are not sufficient to determine the value of the locality for the production of tobacco.

There are many varieties of tobacco, but their characteristics do not remain unchanged when the plants are raised in localities different from those in which the varieties were first grown and established. Attempts have been made to produce the famous Cuba tobacco in other portions of the world that seemed to resemble it closely in soil and climate. But in every instance they have proved unsuccessful. The seed of Cuba tobacco planted in the most favored regions of Kentucky produces the first season a plant with quite a small leaf and a very pleasant flavor. It produces an agreeable odor when burned in a pipe or in the form of a cigar. Its seed, however produces tobacco very closely resembling that which has been grown for generations in the localities where it was planted. In a few years no difference can be seen between the plants produced from seed imported from Cuba and those raised from the seed of plants that have long been grown in the vicinity.

The like is true of what is known as "Connecticut seed leaf," which appears to be a term destitute of meaning outside of the commercial world. It does not retain its characteristics when planted in localities very far remote from the valley where it was originally developed. The "Connecticut seed leaf" tobacco does not owe its characteristics to the seed from which it was produced, but derives them from the soil, climate, and atmospheric agencies where it grew. It is possible that a much better tobacco in some re-

spects, or in all respects, may be raised in some locality where no seed of the kind was ever placed in the soil, and where no plant was ever set out.

This place may be in the valley of the Platte, Grande, or Yellowstone. It may be on some slope of the Rocky mountains or on some island off the coast of the Atlantic. After importing high-priced tobacco from Cuba for over two hundred years, it may be found that a much better article can be produced in our own country and on soil that is now of very little value for any crop that has ever been planted on it. In fact, it is not improbable that the time may come in no distant future when the Spanish officials may smoke American cigars in the orange groves of Cuba. A gentleman who has spent considerable time on the island states that the soil on which the choicest varieties of tobacco are grown very closely resembles in appearance and composition the light clayey soils found in various portions of Alabama and Georgia, where no attempts have ever been made to produce the crop. The lands are nearly valueless at present, but may be, after all mines of wealth.

A WONDERFUL JERSEY COW.

The season's test of the remarkable butter cow Eurotas, No. 2454, which has been in progress for nearly a year at the farm of her owner, Mr. A. B. Darling, near Ramsey, N. J., terminated with her milk of October 15, at which time she became practically dry, and on November 4 she dropped a calf. It has been foreseen for some time by fanciers of the Jersey and of butter stock in general that her test for the year was likely to surpass any previous one, the highest instance heretofore known being that of the cow Jersey Belle, of Scituate, 7828, owned by Mr. C. O. Ellms, of Scituate, Mass., that made 705 pounds of butter in a year. The accompanying table, complied with the records kept at Darlington farm, shows the footings for each month and a total result for Eurotas of 778lbs. 1 oz of butter for the year. No account was kept of the milk and butter made during the first ten days of her milking period, and, as her last calf was dropped a few days within a year from the date of the commencement of the test, she would be entitled to the additional time had the trial commenced five days earlier. The weights of milk and butter were taken at each milking and churning, the butter being weighed before adding the salt, but not until the buttermilk was thoroughly rinsed and worked out. The texture and flavor of the butter is very fine, its color good in summer, but lighter than that of many Jerseys cows during the winter months. Enormous as this yield seems when compared with that of an ordinary cow, those who have her in charge express the belief that during the previous year she far exceeded it. This view is sustained by the occasional test for short periods that were made at intervals throughout the season, which prompted her owner to have her separately tested for a year. Her last calf is a heifer, being the only one she has, the former ones being bulls. It is by Duke of Scituate (No. 3,623), a son of Jersey Belle, of Scituate, above mentioned. This bull and son of Eurotas, called the Duke of Darlington (No. 2,460), are kept as stock sources at Darlington farm. A notable feature of the following statement is the richness of the milk in cream, the ratio being but 9 67-100 lbs. (less than five quarts) of milk to the pound of butter. The cow is of striking appearance, the development of the udder, milk veins, and all the essential apparatus for the assimilation of food and its conversion into milk, being so unusual as to draw the attention of the most ordinary observer.

Eurotas 2,454.

Dropped calf October 31, 1879, and calved again Nov. 4, 1880. The intervening test for butter commenced with November, 10, 1879, and ended with October 15, 1880 (period, eleven months, six days), at which time she became dry:

Month.	No. of Days.	Weight of Milk.	Weight of Butter. Lbs.	Oz.
1879.				
November	21	451	40	1
December	31	755	74	0
1880.				
January	31	746	79	2
February	29	667½	77	1
March	31	653½	75	6
April	30	602	68	11
May	31	770½	87	11
June	30	827	88	6
July	31	760½	80	5
August	31	704	66	7
September	30	454½	32	5
October	15	123½	8	10
Total	341	7,525	778	01

The cow was of course liberally kept, yet the secret of the great yield is clearly in the blood, for it is declared that no ordinary cow, however fed, can be made to accomplish anything like the same result. In winter she had all the hay she wanted, and in addition a pail of gruel of bran and oat meal thin enough to drink, three times a day. The amount of feed contained in this slop is said to have been slight and was given rather to induce her to drink freely than to nourish, as grain was found to increase her rapidly in flesh. When grass came, however, to stimulate the lacteal organs, the grain ceased to tend to fat to the same extent, and she was fed three quarts of corn meal daily in two feeds. In hot weather she was stabled from the midday sun, and fed green corn fodder while up, with the choicest of the pasture while turned out. Though hers is said to be the most remarkable test, other cows closely allied to her in blood have made surprising yields of butter.

THE PROPER CARE OF LIVE STOCK AND POULTRY IN COLD WEATHER.

The days grow shorter, and reach their shortest duration, while the evenings are longer and longer. The time is favorable for looking backward in thought. Forethoughts are good in their time, but after thoughts, though often less honored, are worth a great deal more for shaping the future.

Live stock: As the season advances the live stock require increased attention; not only are they more directly dependent upon our care, but they are subject to discomforts from exposure, which seriously interfere with the profit of keeping them. Of all our domestic animals the pig is the most sensitive to exposure to rough weather, poultry next, in this order: fowls, ducks, geese and turkeys, the last often doing better when exposed than if sheltered. Next to fowls, cows, then working oxen and young cattle; next horses, which are used, unused horses, and sheep. Of these last the long wool breeds are most sensitive to cold, storms and snow, but close-fleeced breeds will stand almost any amount of cold if they have enough to eat, sheds to go under, and shelter from driving storms of rain and snow.

Horses, if well fed, usually feel bright and lively in winter, and young horses are, for this very reason, more easily trained than when the weather and running at pasture makes them dull. Whenever horses are used so as to warm them up at all, blanket them as soon as they stand still, if only for two or three minutes; those two or three minutes are sometimes enough to give a chill, which may end in pneumonia, or other serious troubles. Grooming saves feed, and also promotes health in horses, and should never be neglected. It will probably pay even to groom boarding horses, and it will certainly pay the owners to stipulate that their horses should be groomed daily. Blankets, except mere "dusters," are worse than useless in stables; they make the horse tender, and more likely to take cold when brought in hot. Litter very freely if you have the material; straw, leaves, swamp hay, etc.

Milch Cows: These ought to be well fed, and cleaned by a card and brush, *daily*, if possible, otherwise twice a week. They should be milked up to within four weeks of calving. It is a great temptation to dry off a cow so as to save the labor of milking, and not alone will hired men do this, but the farmers themselves, generally, do it, and think that they save a good deal in feed and labor, while in reality, with young cows, they impart a habit of going dry early, which will last them as long as they live. The better milch cows are fed, the better return they give, but feed judiciously.

Sheep are peculiarly sensitive to good treatment. A good shepherd is always gentle among his sheep. Ewes which are to lamb early ought to be by themselves and have better care as their time approaches. Feed a few more turnips and give them a little more liberal sprinkling of corn-meal and bran, or oil cake.

Pigs: Nearly doubly the feed will be required to keep pigs from going back, after really cold weather comes on—say, when the ground freezes. It is then best to kill at once. Every farmer ought to be able to kill and cut up his own pigs. Butchers are often very rough and brutal. This is not necessary. Many a farmer who kills his own pigs does so because he wants the job kindly and humanely done. He actually thrusts the knife as if he loved the victim. Feed soaked corn, that is, corn which is covered with as much boiling water as it will take up in 24 hours. This is better for either fattening or store pigs than coarse meal, unless the latter be thoroughly cooked.

Poultry: Hens will lay up to Christmas, if they have warm quarters. A manure shed, where mixed manure throws off considerable warmth, and which is closed in, but well ventilated, is an excellent place for fowls. They are kept warm and comfortable, their droppings are all saved, going to enrich the manure, and they keep on laying, often all winter. At noon feed, in open weather, soft food—that is, boiled potatoes mixed with bran and corn-meal, or something of the kind; at night give a good feed of whole grain, throwing down enough to toll them off the roosts for an early breakfast, unless thereby you will be feeding an army of rats all night. In snowy and frozen weather feed three times a day, and give only what they will run after at each meal.—*American Agriculturist.*

THE DEMAND FOR OUR WHEAT.

There is no longer any room to doubt the failure of the wheat crop in Russia nor the deplorable condition of the peasantry. The State Department has received a dispatch from our Minister at St. Petersburg, in which he confirms the reports received from outside sources previously. The wheat crop, he says, has proved almost an entire failure, and American wheat is even now entering the ports of St. Petersburg and Odessa, the latter the greatest grain exporting mart in Eastern Europe. These facts tell the whole story. Russia, in ordinary seasons, has the largest surplus of grain of any country in Europe. England draws a very material portion of her supplies from this source. This year, however, there will be no arrivals of Russian wheat in France and England. Russia herself is not likely to import much from abroad. Her lower classes do not consume much wheat, rye and Indian corn being their usual food. It seems likely that the Russian government may deem it expedient to prohibit the exportation of rye, as it is almost certain that in any event there will be great distress and want among a great portion of the people. The *Golos*, the best known St. Petersburg journal, says:

"From all sides comes news of the harvest being below the average, of want and hunger, from which will spring disease and, very likely, death. Beetles, worms, and locusts are eating up the corn; the diminution of cattle surpasses all belief; diphtheria is taking off the coming generation, breadstuffs have already reached five kopecks per pound. Every one feels that Russia does not subsist

by the produce of its own land, but is wasting its capital in cutting wood, selling surplus cattle, pulling straw from its thatched roofs, and depriving itself of its very clothes ad shoes."

That is a gloomy view, but coming from the source it does, it is doubtless correct in all its essential particulars. It also opens up a field of speculation so far as this country is concerned. What effect will the short crop in Russia have upon our own exportation of breadstuffs? Whatever supplies have been drawn from that country for France and England will now have to be provided for from other sources. This country will undoubtedly be called on to do so. We will be asked to make up the deficiency created by Russia's short crops. How much that will amount to we do not know, but doubtless it is very considerable. This will, in all likelihood, have a tendency to keep up our present heavy exportations of grain and the fair prices now prevailing. Russia's disastrous season will result favorably for our farmers beyond the Mississippi; the vast grain surplus of the great West will be heavily drawn upon, and will contribute to keep up the stream of gold which has been so steadily flowing into this country from Europe.

ENGLISH AND AMERICAN BEEF.

A suggestive addition to the statistics of English foreign trade (says the New York *Tribune*) is the statement issued by the president of the Foreign Cattle Association in Great Britain. We find from it that not only have the English exports and imports of both manufactured and raw products greatly decreased in the last five years, but that the people have ceased to raise or buy as large a number of cattle as they did a few years ago. In 1875 the number of English cattle was 6,012,024, while in 1879 it only reached 5,856,356; in 1875 the number of sheep was 29,167,438, which had fallen off more than a million last year. Nor was this decrease owing wholly to the recent importation of American cattle on the hoof, since we find that the total import of cattle and sheep from all quarters, including Ireland, was in 1879, 2,986,251, while in 1878 it reached 3,043,090. In the last year English native cattle and sheep have fallen off nearly a million and a half.

This depreciation is owing to the importation of American beef and mutton. The English tradesman or laborer can afford now to have meat upon his table once a day, which was not practicable for him in 1875, notwithstanding the fact that the number of cattle and sheep raised by English farmers falls off in one year nearly 1,500,000. The American wheat grower in Minnesota who sows 20,000 acres and employs a regiment of laborers and steam engines enough to stock a railway, can put his grain in the market at Liverpool and undersell the Sussex farmer with his 100 acres. No energy, nor industry, nor patriotism can lift the Englishman on to the same place as this lucky man on this side of the water. Statistics are the most practical of facts, yet no drama is so full of histories of the change and inexorable destiny in human life.—*Maine Farmer.*

COLD WEATHER.

Temperatures were reported by the Signal Office, on Tuesday, as follows: Duluth, 1°; Alpena, 2°; Indianapolis, 2°; Madison, 2°; Marquette, 2°; La Crosse, 4°; Milwaukee, 4°; Port Huron, 5°; Denver, 5°; Cleveland, 8°; Detroit, 8°; St. Paul, 8°; Pittsburg, 8°; Yankton, 8°; Cincinnati, 9°; Breckenridge, 10°; Sandusky, 10°; Boston, 12°; Chicago, 12°; Eastport, 12°; Buffalo, 13°; Grand Haven, 13°; Rochester, 13°; St. Louis, 13°; Toledo, 13°; Portland, Maine, 14°; Burlington, Vermont, 15°; Louisville, 15°; North Platte, 15°; Washington, 15°; Davenport, 15°; New London, 15°; Erie, 16°; Keokuk, 16°; Albany, 17°; Cairo, 17°; New York, 17°; Baltimore, 18°; Cheyenne, 18°; Knoxville, 19°; Nashville, 19°; Omaha, 20°; Fort Gibson, 20°; Oswego, 21°; Memphis, 21°; Leavenworth, 22°; Wilmington, 25°; Vicksburg, 26°; Norfolk, 26°; Shreveport, 38°; Augusta, Georgia, 30°; and Montgomery, Alabama, 31°. A temperature of 9° below zero is reported at Sorel, Quebec, and 25° below at Winnipeg, Manitoba. On Tuesday night the temperature in the Northwest, which had risen slightly, was again falling, so that severe weather may be expected for several days. It is believed at Quebec that all the vessels in the St. Lawrence, as well as those remaining in port, will be frozen in, and the destruction of some of the great lightships as well as large numbers of buoys in the Lower St. Lawrence is apprehended. The severest storm for seventeen years was experienced at Anticosti Island on Monday, and on Tuesday morning the shore was strewn with shell fish, showing that the sea was heavy enough to break the beds.

A telegram from Detroit reports Lake St. Clair finally closed with ice, and navigation rapidly closing on the entire chain of the great Lakes. Seventy-four vessels bound from Buffalo for Chicago are frozen in at different points on Lake Erie; 28 vessels from Chicago to Buffalo are in the St. Clair River or Lake Huron; and 21 vessels from Escanaba for Lake Erie ports are frozen in on Lake Huron. There seems very little prospect of any of these vessels reaching their destinations. Navigation in the Connecticut River, and the Kennebec River, in Maine, was closed on Tuesday. The Hudson River, above Coxsackie, is completely blocked, and its tributaries are frozen. The ice is from 2 to 4 inches thick on the New York canals west of Albany, and many boats are blockaded. The value of grain alone embargoed by the ice is estimated at $7,000,000. Ice 3½ inches thick is being stored in the ice houses at Long Branch.

BUTTER MAKING IN DENMARK AND SWEDEN.

Cork butter ranks high in the London market, and forms a standard for judging other makes. But the product of the dairies of Denmark and Sweden fairly outranks it, and sells in the same market for about 23 per cent. higher price. This great superiority Canon Bagot, who has taken pains to investigate the subject, ascribes to the careful education of the dairy maids, which has been systematically pursued in Denmark for the past fifteen or sixteen years. We find the following synopsis of his observations in the *Popular Science Monthly:*

In Sweden the dairy maids are sent to college and educated in dairy management for six months, at the end of which time they receive certificates and are considered competent to work in large dairies. Their instructions are very definite as to every feature of the operation of butter-making, including the quality of salt and the coloring matter, and the food of the cattle, the quality of the butter is consequently uniform. A part of a lot of Cork butter may sometimes be sent back by the wholesale dealer because it is not equal to the rest, but this is said never to have happened with Danish butter. The selection of the cows and the feeding of them are the first important points in the business. The Danish dairymen keep their cows tethered during the summer in "splendid clover and rye grass," and feed them in winter with clover hay, linseed cake, and rape cake. The milk is set in such a way that the cream shall be got off while it is still perfectly sweet for they will not churn it if it is in any other condition. The proper temperature for churning, which is from 57 to 60 degrees, is essential, and the churning should not be continued too long. The best butter-makers stop churning at the very moment the butter appears in the form of grains like shot. They pass off the buttermilk through a strainer, then put the butter back with water, give it a few more turns in the churn, strain again, and repeat the operation till the water runs off as clear and bright as when put in. Salt is added by weight at the rate of six pounds of salt to a hundredweight of butter, by being sprinkled over the butter after it has been spread out in layers; a few turns are given the mass with the butter-worker, and the process is complete.

THE COST OF A POUND OF BUTTER.

The New York *Weekly Times* inquires: "What does a pound of butter cost? What dairyman can give a precise answer to this question? And if we should put it in this way, What ought a pound of butter to cost? we should present a poser, not only to the dairyman, but to all the agricultural experiment stations now existing or in embryo. But those are very pertinent questions, because it is in the choice and use of the feed that profit and loss lies, and who can say what food, and which method of feeding it, produces the most favorable results. I have been feeding cows experimentally for years, and although I have made up my mind which foods and which methods are best for me, I could not say positively that one or the other would be best for another dairyman. The most costly food for a cow is hay and cornmeal and wheat middlings. With hay at one cent a pound and corn and middlings at 1¼ cents it will cost to feed a cow fifteen cents for hay per day and 7½ cents for meal in all, 22½ cents. A cow that will make 250 pounds of butter in a year will cost at least $60. She will repay her own cost in calves and her carcass when twelve years old, so that to pay for her feed will cost $81 yearly, if it is purchased, and if it is provided by the farm it comes to the same end, for the feed might be sold; and against this there are 250 pounds of butter, worth, at the market price for the best quality, about $50 net. Now what should the butter cost? If the cow is at pasture for six months of the year the pasture will be worth at $60 an acre for the land and four acres to the cow, interest alone, $8.40; taxes will add at least $2 an acre more; so that with the winter feeding the cost in all will be $53.40, and the skimmed milk and manure may pay for the labor. Then can a pound of butter be made for less than twenty-five cents? and if not the dairyman is not likely to be troubled about the high price of four percents. But what of the dairyman whose cows will make but 150 pounds of butter in a year, and whose butter causes the nose of the commission man to turn upward? How do they live, and how much do they cost per day?

A NOTABLE PIGEON ROOST.

The most notable pigeon roost in the West is located in the southwestern part of Scott county, Indiana, and covers many hundreds of acres of the forest. To this roost come nightly, in the fall season when pigeons are abundant, millions of these birds. They commence arriving as early as five o'clock in the evening, and often until midnight the flocks pour in. The birds commence leaving at daylight, and by eight or nine o'clock all have departed for the feeding grounds, often hundreds of miles away.

During the roosting season this pigeon roost is a notable and exciting place. Hunters visit it from all parts of Indiana, and from Ohio and Kentucky. They come armed with shot-guns and long poles, and supplied with torches and sacks, the latter to be used in carrying off the captured birds. The hunters usually commence their work about 8 o'clock in the evening, and thence on through the night the scene is an exciting one. The roar of shot guns is heard on all sides. Added to this is the cracking and falling of the limbs of the trees from the accumulated weight of the pigeons upon them. Torches flash on all sides through the forest, the crash of the long poles through the lower limbs of the trees as they sweep down the birds, the shouts of the hunters and the whir of the wings of rising and setting flocks create confusion worse confounded. Thousands of birds are killed nightly, and during the day droves of hogs roam throug the forest to fat-

ten on the killed and wounded birds left on the ground during the night's foray.

At intervals of many years the pigeons change their roosting place, but never locating far away from the old roost. A week ago they made a change of base, taking new quarters a few miles distant from the former roost. This change was made in the night. The Scott county pigeon roost has been a famous resort for more than eighty years. Near this roost the most noted Indian massacre that ever occurred in this part of the State took place in September, 1812. A party of marauding Pottawatomies, out on the war path, attacked the pigeon roost settlement, at that time the most remote in this direction from the falls of the Ohio, and murdered all the settlers but five—two members of the family of John Collins, and Mrs. Beadle and her two small children, Mrs. Beadle flying with the children in her arms; and secreting herself and them in a sink hole till the Indians had gone, when she took the little ones in her arms and ran to the nearest settlement, six miles away and gave the alarm. It was but a little distance from this historic spot that the late Democratic candidate for Vice President, Hon. William H. English, passed from infancy into manhood.

DO WE EAT TOO MUCH?

Nothing consumes the general worth of the world like the feeding of its populations, and it is by no means yet completely settled that the majority of men, once above the imperative restrictions of poverty, do not eat a good deal too much. An idea has been very generally spread that it is healthy to eat often, till certain classes, more especially servants, eat five times a day; and the end of the medical aphorism, that those who eat often should eat little, is very often forgotten. The *Lancet* of September 4, in a curiously cautious article, hints that the modern world eats too much in positive bulk of food—a statement certainly true of great bread eaters, a distinct and well-marked type—and thinks the modern regularity of meals has induced us to regard appetite as the guide rather than hunger, which is the true one. Regularity of meals develops appetite, not hunger. We rather question the previous proposition, as a very hungry man is apt to eat too much, but we believe that the extension of wealth and the extreme public ignorance upon the subject tend to foster a habit of taking too many meals. Men and women eat three in 10½ hours—breakfast at 10 a. m., lunch at 1:30 p. m. and dinner at 7:30 p. m.—a division of the twenty-four hours of the day which can hardly be healthy. It leaves thirteen hours and a half without food, while in the remaining ten and a half there are three meals. It would be better, we imagine, for sedentary men to reduce theirs to two, taken at considerable intervals; or if that is too worrying, to confine the intercalary meal to the merest mouthful, taken without sitting and with no provision to tempt the appetite. Lunch for those who work with the brain is the destruction of laboriousness, and for those who work with the hands is the least useful of the meals. It is very doubtful whether the powerfully built races of Upper India, who eat only twice a day—at 10 a. m. and 10 p. m.—are not in the right, exactly equalizing, as they do, the periods of abstinence, though it is difficult to decide from the exomple of hereditary tetotal vegetarians, the bulk of whose food is out of all proportion to its nourishment. The great evil to be removed is, however, not so much the mid-day meal as the profound ignorance, even of educated men, as to the quantity of food indispensible to health, and the quantity most beneficial to it. On the first subject most men know nothing, or at best only the amount of a convict's ration, which is fixed at the standard found most conducive to severe labor in confinement, and is no rule for ordinary mankind. Cannot the doctors tell us some handy rule of thumb about this? They have told us that the beneficial quantity of alcohol is the equivalent of a pint of ordinary claret a day, but what is the beneficial quantity of food. It must differ according to diet, physique and occupation, but still there must be some formula which will convey in intelligible fashion the average maxium required by men of different weights. We believe most men would be surprised to find how very low it is and how very much they exceed it, especially in the consumption of meat. Vegetarianism, which some among us exalt as a panacea, has been tried for thousands of years, by millions of people, and has, on the whole, failed, the flesheating people out-fighting, out-working and out-thinking the eaters of vegetables only; but between vegetarianism and the flesh-eating habits of well-to-do Englishmen there is a wide distance. Mr. Banting, too, wrote wild exaggerations, but the way in which Englishmen of reasonable intellectual capacities will swallow crumb of bread, often not half-baked, by the pound at a time, would account even for severer melancholy than that under which they labor. We want an intelligent rule, to be obeyed or disobeyed, but to be remembered.—*London Spectator.*

CHAMPAGNE.

Dom Porignon, Prior of the Abbey of Hautvillers, discovered a means of making white wine from the dusky grapes, and he invented the thin tute-like glass which held the foaming liquor. It was known as "Vin Perignon," and later, in the days of Regent, as "Van d'Ay," and Voltaire, the cynic and free-thinker tells this in his letters that he consoled himself during his stay at Ferney with the wine which had been invented by the monk.

Connoisseurs declare that it is impossible to make good champagne without blending different wines together, and the finest brands are made of black and white grapes, with Verzenay to give vigor and body, Benzy to contribute the bouquet, Ay to tone down the mixture, and Cremant to give it those sparkling, creaming qualities which are so much appreciated. Like the good people of Cognac, who buy raw spirit in England and then send it back again to London as "Fine Champagne," the tradesmen of Rheims are accused of importing large quantities of effervescing wines from Touraine; and there is a shrewd suspicion that some of the cheaper vintages are grown on the hillsides at Saumur, and simply champagnisee at Rheims.

The time chosen for bottling is the month of May, when every house in the trade is busy filling up the vacancies left in the bins by the numerous demands which have been made by the consumer. Stout wire masks are used for visiting the cellars at this season of the year, for, although accidents are excessively rare, bottles have now and then burst with the force of the gas, and fragments of glass have been hurled right and left, more than one man bearing the marks of cuts, clean as if done with a sabre, on his neck and forehead. Each person is armed with a candle such as is used in the docks in London, and then the vaults are explored. They are cut deep in the chalky soil, and some say they were made by the Romans in days gone by, but no one can tell for certain what purpose they were intended to serve before they were used for storing up the wine. There are the bottles, tier upon tier, sugar-candied, brandied and flavored, sealed and capsuled up, labelled with the name of the firm; and ready to be packed in those wooden cases, which are being made in the carpenter's shop with far more care and attention than a pauper's coffin. Each of the 6,000,000 or 7,000,000 of bottles piled up have passed through the hands of about 130 persons. Rheims is full of champagne manufacturers; it is the headquarters of the Widow Cliquot, of the Roederers, of Mumm, Moet, and Chandon, Montebello, and Perier, while the palace of the Moets at Epernay vies in importance with that of Madame Pommery at Rheims. Some prefer one wine, others another; but few persons who have not visited the country can credit that the glorious vintage is not exactly what it pretends to be; that the creamy effervescence so highly prized is not the work of nature, but of art, and that the pure, unsophisticated vintage which gladdened the heart and toned down the asperities of Wenceslas, of Poland, was a still wine, as different from what is generally called champagne as chalk is from cheese.

PROPAGATING GERMAN CARP.

Less than four years ago the first successful attempt to introduce the German carp into this country was made under the auspices of the United States Fish Commission, by Dr. E. R. Hessel. About 130 of the fish were living when the consignment reached this country, and all the German carp now in the United States are the progeny of this small number. Within a year Professor Baird has distributed throughout the country about 30,000 of these valuable food fishes. The water in the carp ponds in Washington has been drawn off this week, and it is found that about 100,000 fish can now be distributed. One thousand have lately been sent to the stock ponds in Tennessee, and 5,000 were shipped to Kentucky for the same purpose.

A great many of the fish sent to different parts of the country have been shipped to individuals who have ponds and desire to stock them. About one-half of those recently sent to Tennessee were to supply the demands of individuals. As evidence of the general demand for carp is the fact that there are now on file in the office of the Fish Commission some 3,000 applications. It is understood that hereafter when carp are to be sent to a State where there is a State Fish Commission, it will be expected that that commission will receive them at Washington and transport them to the places where they are to be placed for the purposes of breeding. The States which have thus far been supplied with carp, either fully or in part, are New York, Pennsylvania, Illinois, Ohio, Missouri, Minnesota, Wisconsin, Michigan, Connecticut, Tennessee, Georgia, Texas and Mississippi.

The carp do not breed until three or four years of age, but like all other fish their fecundity is very great, and after they arrive at the breeding ages the 130,000 which will have been distributed throughout the country before the end of this year will multiply in such a ratio as soon to add materially to the food supply of the people. Prof. Baird estimates that one pair of breeding carp is sufficient to stock an acre of water, and that the spawn from a single fish will produce from 5,000 to 10,000 young fish. These make a very rapid growth during the first three or four years, frequently reaching a weight of ten to fifteen pounds in that time.

As a matter of practical interest to those who desire to start carp ponds, it may be mentioned that all applications to the Fish Commission should show the date, name of the applicant, postoffice address, situation of the pond nearest the railroad station, name of railroad, area of pond, character of bottom, and what other fish, if any, the pond contains. The area of the breeding ponds in Washington will be extended next spring by eight acres.

FOR THE FARMER.

The general rule in feeding cows is that twenty-seven pounds of dry food daily are required for 1,000 pounds of live weight and that three-fourths or two-thirds of this should be bulky food, such as hay. This is a rule which admits of many exceptions. Very much depends upon the form of the cow. Some cows weighing 800 pounds consume more food than others weighing 1,000 pounds.

Milking qualities in swine are as surely transmissible to progeny as in cattle. Thus it is as true of swine as of cattle that this trait may be greatly improved by retaining only good milkers for breeders, as well as by feeding them when young with a view to their development as milk-producers rather than as fat-producers. For this reason spring and early summer litters as usually the best from which to select young brood sows.

Failures in tree planting too often arise from the mistaken notion that when the roots of a tree are once in the ground, the work is done. After a tree is carefully planted it should be mulched with leaves, straw, tan or any similar material, not so thick as to exclude the air, but sufficient to retain the moisture in the soil; for although there may be plenty of rain early in the season, the chances are that a drouth more or less severe will follow.

The *Prairie Farmer* says: "In Southwestern Russia, between the Baltic and the Black Seas, the sunflower is universally cultivated in fields, gardens and borders, and every part of the plant is turned to practical account. A hundred pounds of the seed yield forty pounds of oil, and the pressed residue forms a wholesome food for cattle, as also do the leaves and the green stalks cut up small, all being eagerly eaten. The fresh flowers, when a little short of full bloom, furnish a dish for the table which bears favorable comparison with the artichoke. They contain a large quantity of honey, and so prove an attraction to bees. The seeds are a valuable food for poultry; ground into flour, pastry and cakes can be made from them; and boiled in alum water, they yield a blue coloring matter. The carefully dried leaf is used as tobacco. The seed receptacles are made into blotting paper, and the inner part of the stock into fine writing paper: the woody portions are consumed as fuel, and from the resulting ash valuable potash is obtained. Large plantations of them in swampy places are a protection against intermitting fever."

OUR GAME FOOD.

An article in the International Review for August, (A. S. Barnes & Co., 111 William St., New York), opening with the remark that "the amount and value of the game food of America are much underestimated," offers a strong plea for the preservation of our edible birds and animals before it shall be too late. Ruin almost irreparable has already been effected:

So long as America continued in the occupation of the aborigines, the order of nature was apparently but little disturbed. The buffalo and deer, the wild fowl and turkeys, furnished abundant food to the savages without serious encroachment upon the fertility of nature. In savage life there appears to be no wanton or unnecessary destruction of the natural means of support. It was reserved for the civilized white man to carry on a wanton war against the the bounty of nature and to kill and destroy, without thought or study of those imperative laws under which nature holds in trust the food and supply of man. From the first settlement of the country, the process of eradicating and annihilating the useful animals, birds and fishes natural to the country has been carried on with an energy and success, but too characteristic of the Saxon race. Large tracts of land have been entirely depopulated of their animals and useful birds. The buffalo on his native plains has become an object of rare curiosity. Deer are limited to the remoter mountain-ranges or extensive tracts of barren woods. The wild fowl, which swarmed in New England during the first settlement of the country, and for a long time afterwards, have almost disappeared. The last wild turkey was killed in Massachusetts nearly half a century ago. There is probaby no sportsman living who has killed a grouse on Marth's Vineyard, the last refuge in the northeast of that most valuable bird. Plover still migrate, though in diminished numbers from their breeding places in the far North to their winter homes in the South, but they carefully avoid the northeastern coasts. No one in this generation has seen a wild swan alight on the waters of Massachusetts. They once abounded there. Even the wild geese find no resting-place here, but are expelled as if they were tramps and vagabonds.

In regard to a remedy for this deplorable state of affairs, the author offers only general suggestions, which are certainly good so far as they go:

"No doubt the habits of food-birds need to be much more thoroughly observed and studied before the laws and customs for their preservation can be perfected. This can be properly done only by scientific men trained to observation, who, acting under government as commissioners of game, may suggest the requisite laws, and see that they are enforced. That it is for the interest of the public to do this is evident from the fact that the game food of the country is one of its most valuable crops, amounting to many millions of dollars annually. But our legislatures and our people generally have hitherto regarded the subject as a matter not concerning public welfare, but merely affecting the gratification and whims of sportsmen and gunners, who, as a class, are looked upon, in most New England communities at least, with a contempt inherited from Puritan times. It would be advisable, therefore, to raise the money for the official expenses of game commissioners and the cost of the proper execution of the laws by a moderate tax or license for people wishing to shoot, whether for sport or for the market. A tax of three or five dollars would be quite sufficient for the purpose, and would enable an intelligent game commissioner in each State gradually to establish a system which should protect and multiply the game, and yet allow the privilege of shooting to be free to every one during the brief season in which the game crop could be secured.

No doubt the season of shooting allowed by the law is far too extended, especially in the Northern and Eastern States. If we wish to preserve game for food, or for sport, its destruction by shooting should be limited at the outside to four weeks; and this period, as to birds of passage, should be so arranged that, alighting on their feeding ground, they should be unmolested for at least a week or more. A little careful observation and gathering of statistics would show whether the period of shooting might safely be extended or needed to be curtailed, or, in exceptional years, omitted. The matter might be aided by requiring a small license fee from persons selling game, under the condition of monthly returns of the game sold by them, and of the places where it was killed.

"What we want to aim at is absolute harmony and familiarity between birds and man during the close season, and a gradual extinction of the instinctive habits of pursuit and destruction which is so inherent in the American people in their relations to nature. Nor is this question one of economy merely, or of adding to or maintaining the desirable variety of food for our table,—a question which enters, by the way, very largely into the subject of the indulgence in spirituous liquors; for men not well fed will drink—but it is a question of national self-education, and is moreover one step, and an important one, in the elevation of our people by self-restraint to a higher scale of national civilization than the world has yet seen."

BUSINESS HABITS FOR FARMERS.

There is probably not one farmer in ten thousand who keeps a set of account from which he can at any moment learn the cost of anything he may have produced, or even the cost of his real property. A very few farmers who have been brought up to business habits keep such accounts, and are able to tell how their affairs progress, what each crop, each kind of stock, or each animal has cost, and what each produces. Knowing these points a farmer can, to a very great extent, properly decide what crops he will grow, and what kind of stock he will keep. He will thus be able to apply his labor and money, and where it will do the most good. He can weed out his stock and retain only such animals as may be kept with profit. For the want of such knowledge, farmers continue, year after year, to feed cows that are unprofitable, and frequently sell for less than her value one that is best of the herd, because she is not known to be any better than the rest.

Feed is also wasted upon ill-bred stock, the keep of which costs three or four times that of well-bred animals, which, as has been proved by figures that cannot be mistaken, pay a large profit on their keeping. For want of knowing what they cost, poor crops are raised year by year at an equal loss, provided the farmer's labor, at the rates current for common labor, were charged against them. To learn that he has been working for 60 cents a day, during a number of years, while he has been paying his help twice as much, would open the eyes of many a farmer who has actually been doing this, and it would convince him that there is some value in figures and book accounts.

JEALOUSY OF BIRDS.

A singular incident in natural history occurred lately at Chester, England. A thrush in a happy state of freedom was trilling its notes in the orchard below the walls, near the "wishing steps," when its music excited similar efforts from a caged bird of the same species, which was suspended in front of the adjacent houses. These feathered songsters persevered in raising their melodies to higher efforts, as if in earnest rivalry, when suddenly the bird among the trees darted from its perch upon the vicar cage of its competitor, broke the bars, entered it, and commenced an assault upon the musical captive: the owner of which, hearing the unusual noise, came out, took the aggressor prisoner, and sold it into bondage. The ill-tempered thrush had therefore paid the penalty of sacrificing its freedom to its jealousy. This anecdote is stated as a fact, and not written, as it might seem to be, for the purpose of pointing a moral against musical jealousies among human vocalists.

INTERNATIONAL POTATO SOCIETY.

The exhibition of this society was held a few weeks since at the Crystal Palace, London, and was so extensive that 2,500 dishes of nine tubers each were shown by one hundred exhibitors. Many prizes were awarded, and among those for new varieties, the first was given for a long Round Kidney, raised from the Belgian Kidney crossed by the Early Rose; the second to a seedling of the Early Rose crossed with Fenn's Early Market, and the third to a round white variety, not crossed. A writer in the *Garden* says that although some collections embraced hundreds of sorts, yet only thirty included about all that are commonly cultivated. Of recognized sorts, America furnished about fifty; and one exhibitor who had a very fine lot of twenty-four sorts, included among these no less than seventeen that were American. English cultivators find a great advantage in employing the American varieties to cross with their own.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular meeting of the Lancaster County Agricultural and Horticultural Society was held in their room over City Hall, on Monday afternoon, December 6, President Joseph F. Witmer in the chair.

The following members and visitors were present: Joseph F. Witmer, Paradise; M. D. Kendig, Manor; Daniel Smeych, city; J. H. Landis, Manor; J. M. Johnston, city; W. W. Griest, city; F. R. Diffenderffer, city; C. A. Gast, city; W. Bollinger, Warwick; Johnson Miller, Warwick; J. C. Linville, Gap; Dr. C. A. Greene, city; William McComsey, city; Elias Hershey, Leaman Place; C. L. Hunsecker, Manheim; Peter S. Reist, Lititz; Peter S. Hershey, city; Calvin Cooper, Bird-in-Hand; James Wood, Little Britain; J. H. Hershey, Rohrerstown; J. L. Landis, city.

On motion the reading of the minutes of the previous meeting were dispensed with.

Mr. Bollinger reported the grain crop in his neighborhood to be especially poor—the early sown wheat being nearly eaten up with the fly. He measured off one acre of ground and sold off 115 bushels and 24 pounds of corn—72 pounds to the bushel.

Mr. Landis said the grain in his township looked exceedingly well. The tobacco men are around, but only one lot has been sold for 27, 7 and 5.

Mr. Witmer said that wheat in his section had never been in better condition. He knew of three sales of tobacco—one at 26, 8 and 3, and two at 23, 8 and 3 each.

Mr. J. C. Linville read an essay on the cultivation of wheat. [See page 182 of this number of THE FARMER.

On motion of Dr. Greene the thanks of the society were tendered to Mr. Linville.

Mr. Kendig thought that perhaps the cause of Mr. Linville's wheat rusting and becoming mildewed was owing to the fact that it was standing alone.

Dr. Greene read a short paper on the subject of fertilizers, advocating the subject be brought before the society for discussion. There was much valuable matter going to waste in the streets and alleys of our cities, which with proper attention could be utilized as a fertilizer. He thought 10,000 loads of good material for the manufacture of a fertilizer could be gathered in Lancaster every year. He advocated the formation of a company for the manufacture of a fertilizer.

Mr. Linville thought the matter was certainly worthy the attention of all interested in the cultivation of the soil.

Dr. Greene reported that he had corresponded with Mr. Burpee, but that gentleman said that although he was very busy at present, he would be pleased to deliver a lecture before the society at some future time. He also was in correspondence with other persons, and hoped to have a lecture in this city at an early date.

Mr. Hunsecker, to whom the question "Can the Dairy and the Tobacco Farming be carried on successfully on the same farm?" had been referred, read the following paper in answer:

This is one of those questions which is much more easily asked than satisfactorily answered. But as the association has done me the honor of referring it to me for discussion, I will endeavor to answer it.

The raising of diverse crops upon the same farm may be a matter of taste as well as profit, and whether the cultivation of tobacco and the feeding of cows upon the same farm are in harmony with one another or not is not of much importance to the farmer so long as both branches of industry pay him handsomely for his labor and expense. In our section of country it is customary for farmers to grow wheat, corn, rye, oats, potatoes, turnips, beans, peas, cabbage, etc., etc., as well as tobacco, and pasture cows, milk them, sell the milk, butter and cheese to the best advantage as well as the other products of the farms.

The cultivation of tobacco requires a great deal of labor, and where labor is scarce and high priced, it is not likely a farmer will prosecute successfully dairying or tobacco growing. But it is an entirely different thing where there is an abundance of labor; much of the tobacco is farmed on the share, and many an industrious man with his wife and children grows a few acres of tobacco successfully for himself and his landlord, and the dairy in the hands of the farmer don't suffer in the least on its account. Amongst our exports, coastwise as well as foreign countries, we find that the dairy as well as the tobacco are important items.

It was stated at the International Dairy Fair, of New York, December, 1878, that the combined value of butter and cheese produced annually is $ 650,000,000 more than the wheat crop of the United States! These figures are seemingly fabulous, but their accuracy is beyond doubt.

The value of the tobacco crop in Lancaster county of two or three millions of dollars annually is too enticing to the acquisitiveness of our farmers that they will not hasten to abandon it. But the probabilities are that the dairy, as well as tobacco growing, will be prosecuted with vigor by the practical farmers of our country, since so much of the wealth and prosperity depend upon them.

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

Dr. Greene argued that the two cannot be carried on with good effect on the same farm, for the reason that the nicotine poison would be inhaled by the cow and communicated to the butter.

Mr. Hunsecker said he had the presumption to believe that some of the gentleman's remarks were purely imaginary. The people who lived in the country, and who kept their cows in the same barn with their tobacco, had never noticed any change in the health of the cows or that the milk was less pure.

Mr. Wood said in order to have good butter it is very necessary to keep everything clean.

The question "Is Close Grazing Injurious to Pasture Lands?" was discussed. Mr. Miller argued that it was, after the grass had grown.

Mr. Kendig said that in order to get a good crop it was advisable to graze closely. This he had observed, and therefore believed in close grazing to start the grass.

Mr. Landis agreed with Mr. Kendig, and thought his views were correct, provided the season was not too dry, and mentioned an instance where this was the case.

Mr. Wood noticed that in a field where the grass crop was formerly poor, the farmer afterwards turned in his sheep and they nibbled the grass close to the ground, and on this occasion he had as good a crop as he ever saw.

Mr. Eby's attention having been called to an article which asserted the fact that in early years the State was not timbered, said that while he did not believe this was the case, he said he know for certain that some sections of Lancaster county which were clear of timber are now covered with forests. This only applies to some small districts of the county, and he thought the greater part of the land was covered with timber.

Mr. Landis corroborated the statement of Mr. Eby and mentioned the fact of his grandfather having helped to clear timber in the Pequea Valley which must certainly have been several centuries old.

The question was further argued by Messrs. Hostetter, Landis, Linville and others, and the conclusion generally arrived at that Mr. Meehan, the writer of the article, was entirely wrong in his assertions.

Mr. Cooper said he had in his possession the voucher for the bounty due the society for the year 1878. Mr. Cooper said that in consideration of the services rendered in a legal manner by Mr. S. P. Eby, he would move that he be made a life member of the society. The resolution was carried unanimously.

Mr. Witmer said Mr. J. B. Lichty had rendered valuable services to the society during the late fair, and as he had refused pecuniary compensation, thought some action should be taken by the society.

On motion the thanks of the society were tendered to Mr. Lichty for his services.

The following questions were referred for answer: "What are the relative values of corn and wheat bran as food for stock?" to J. C. Linville; "Can fruit trees be grown for their timber as well as for their fruit?" to H. M. Engle; "Should fruit be allowed to rot under the trees?" to Calvin Cooper; "Are wind-breaks as a protection to orchards beneficial?" to Casper Hiller; "What is the best way to restore worn out lands?" to Israel L. Landis; "Was Pennsylvania covered with forests at the period of its settlement by Europeans?" to A. F. Hostetter; "What legislation should we have on the subject of forest culture?" to Mr. Eby.

Dr. S. S. Rathvon reported that he had received $162.45 with which to pay premiums awarded at the late fair, and had paid out the sum of $122.95, leaving a balance in his hands of $39.50.

On motion the thanks of the society were extended to Dr. Rathvon for the services rendered.

There being no further business the society on motion adjourned.

POULTRY ASSOCIATION.

The regular monthly meeting of the Lancaster County Poultry Association was held in their rooms in the City Hall, on Monday morning, December 6.

As a good many points in reference to the coming exhibition next month had to be finally determined, there was unusual interest manifested in the proceedings.

The following members and visitors were present: S. N. Warfel, Strasburg; J. B. Lichty, city; Chas. E. Long, city; C. A. Gast, city; F. R. Diffenderffer, city; Wm. A. Schoenberger, city; H. H. Tshudy, Lititz; John A. Stober, Schoneck; Frank Greist, city; Ed. Brackbill, Strasburg; Jacob B. Long, city; J. K. Trissler, city; Ferdinand Schaeffer, city; Chas. Lippold, city; H. S. Garber, Mount Joy; John E. Schum, city; D. M. Brosy, Manheim; J. B. Garman, Leacock; Dr. J. H. Mayer, Willow Street; Willie H. Amer, city; J. M. Johnston, city; Joseph F. Witmer, Paradise; Jacob B. Long, city; Geo. C. Liller, city.

The meeting was called to order by the President, S. N. Warfel.

The minutes of the previous meeting were read and approved.

New Business.

W. H. Roy and Harry Trout, of Lancaster; J. B. Witmer, of Mountville, and A. B. Krider, of Salunga, were proposed and elected to membership.

Report of Executive Committee.

J. B. Lichty, on the part of the above committee, reported that Mr. Colin Cameron offered his incubator free of charge, the Society to be at the cost of running the machine during the exhibition. He also stated that William H. Foehl, of this city, is the inventor of an incubator, which he will exhibit free of any cost to the society, except the furnishing of the eggs necessary to run it.

On motion the offer of Mr. Foehl was accepted, and his will be the only machine on exhibition. It is said to be a very excellent one, with glass sides and top, enabling persons to see the inner workings of it without difficulty.

Considerable discussion arose about getting the required twenty-five dozen of eggs for the incubator. A number of members promised to furnish some, and it was decided to buy as many more as are required.

Hall Rented.

The Secretary informed the society that he had secured four rooms in Roberts' building in which to hold the exhibition, for the sum of $60. This sum includes gas, fuel and other extras.

He likewise advised the members that he had procured the services of two judges for the fowls—Jesse G. Darlington, of Hestonville, and John Clapp, of Frankfort—and for pigeons, Charles Becker, of Baltimore, has been secured.

The Secretary also informed the society that the Pennsylvania Railroad had agreed to issue excursion tickets from all points east and west. These will have coupons attached, admitting the holders to the show. The rates will be lower than the ordinary ones, and the admission to the show be just so much gained by the holders. The Reading road will also issue tickets at reduced rates to exhibitors.

The catalogue and premium lists will be ready in a few days for distribution.

A large number of special premiums have been received from various quarters, including eggs from many of the best known chicken men in the country. These premiums cover a large field, and must prove attractive to exhibitors.

There was some discussion about the distribution of the catalogue. It was finally resolved that five copies be sent to every member and that the Secretary distribute the rest where they will do the most good.

A letter was received and read from Rev. D. C. Tobias, asking that his name should be dropped from the roll of members. The request was granted by a unanimous vote.

Charles E. Long moved that a special premium of $5 be offered by the society for the finest pair of pigeons of any variety on exhibition. Carried.

There being no further business, the society adjourned.

LINNÆAN SOCIETY.

The society met at the usual time and place on Saturday, November 27, Mrs. Gibbons, president *pro tem*, in the chair, and Mrs. Zell, secretary *pro tem*; five members and three visitors present. After the usual opening business the following donations were made to the museum and library:

Donations to the Museum.

1. A beautiful specimen of the "American Coot" (*Fulica Americana*), donated by Dr. M. L. Davis, of Millersville. Not a rare bird, but an exceedingly fine specimen in full winter plumage.

2. A fine adult specimen of "Muhlenberg's Tortoise," (*Calemys Mulenbergii*) donated by S. S. Rathvon. This is by no means a common tortoise in Lancaster county, being only the second specimen obtained by the donor in a period of more than thirty years, and even for this he is indebted to Mr. Luther Richards, who picked it up during a fishing encampment of the Tucquan club, at York Furnace Bridge, July last. It has been kept alive all summer, but through neglect during the late cold weather it froze to death.

3. An abnormal specimen of *Hepaticus gallus*, or "chicken liver," donated by Mr. Griest of the *Inquirer* office. This is evidently the disease gland of a common fowl, and weighed 1 pound 1 ounce. For further particulars see THE LANCASTER FARMER for November, 1880.

4. A fine specimen of *Spongia prolifera*, donated through Mr. Chas. A. Heinitsh by Mrs. Dr. Wilson. This is one of the most beautiful species of the sponge family, and was found floating in the ocean near the shores of New England.

5. A jar of beans infested by the "Bean weevil" (*Bruchus fabea*), donated by Mrs. Zell. Every seed was infested with from two to six weevil, their germinating functions being entirely destroyed; the worst case perhaps that ever came to the knowledge of the society.

6. Two specimens of "Teak wood" from British Burmah, donated by Miss Lefever.

Donations to the Library.

1. Nos. 18, 19 and 20 of *Patent Office Gazette* from the department of the interior.

2. Proceedings of the Academy of Natural Sciences from April to September, 1880.

3. A copy of the *International Review* for June, 1880.

4. THE LANCASTER FARMER for November, 1880.

5. The *Musical Herald* for September, 1880.

6. Three catalogues of miscellaneous books.

7. Ten miscellaneous circulars.

8. Three envelopes containing 33 historical and biographical scraps, by S. S. Rathvon.

9. A quarto volume of the coast survey, from the department of the interior.

Papers Read.

Mrs. Gibbons read an interesting paper on the Aboriginal or Indian names of Pennsylvania, which will be published in the *Pennsylvania School Journal*

Adjourned.

Owing to the circumstance that the annual meeting will occur on Christmas, a change may be necessary, of which due notice will be given.

Through pressing secular and professional engagements, the meeting on this occasion was small and the hour late, some members only being able to reach the place after adjournment.

AGRICULTURE.

Some Items in Farm Economy.

The arrangement of the buildings and the division of the farm into fields depends so much upon the character of the farm, the kind of farming, individual taste, etc., that it is out of the question to have a fixed plan that is the best one for all farms of any given size. There are certain general principles which should serve as a foundation for the arrangement, but the details must necessarily vary greatly. For example, if possible the barns should be upon a rise of ground where a cellar can be built opening to the lower ground at the rear. The fields should be so arranged that there shall be as little fencing as possible, and so located that all the fields can be easily reached from the lane. A long field has considerable advantage over one of the same area that is square—in the "longer bouts," and therefore less time spent in turning, plowing, harrowing, sowing, harvesting, etc. A pasture close to the stables is always handy, and other things being equal, the orchard should not be put at the rear of the farm, where the wood lot had best be located. There is much labor to be saved in having everything so placed—and this applies to the various details that seem trivial at first sight—that there will be no extra steps or turns in doing the every-day work of the farm. For example, many day's work can be saved by having the pump in a handy corner of the banyard, where the stock from a number of yards may come to the troughs. If the matters of the farm are not already economically arranged it would be well to make such changes of fences, buildings, etc., as to finally secure the desired end. By degrees the thoughtful farmer will improve his farm until it approximates to a model and therefore an economical farm.—*American Agriculturist.*

Swamp Muck as a Fertilizer.

Professor S. W. Johnson of the Connecticut Experiment Stations has just issued a bulletin containing thirteen analyses of meadow muck, sent in by farmers living in different sections of the State. In the thirteen samples reported, the value of each varies according to the proportion of sand and clay intermixed, and also according to the amount of water it contains. Excluding the water and ash substance, the organic matter remaining shows from 1.10 per cent. of nitrogen as the lowest, to 3.44 as the highest in the thirteen samples. The organic matter ranges from 7.55 per cent. to 55.57 per cent. The water content varies from 32.08 to 87.13 per cent. and the ash, including sand, etc., from 1.09 to 45.01. With such widely different results it is not strange that farmers entertain very widely differing opinions concerning the value of muck as a fertilizer for upland. But ten of the thirteen samples certain, in their organic matter, over two per per cent. of nitrogen, or as much as many of the commercial fertilizers sold in the market. The sample was taken from a drained swamp, owned by Augustus Storrs, Mansfield, and was found to contain large quanties of iron salts, mainly proto sulphate of iron, the same thing as copperas or green vitriol, poisonous to vegetation. Leached ashes or lime are required for for such land to correct difficulty. Some samples, however, which are rich in organic matter and which are tolerably dry, when dug may be valuable for immediate use as top dressing on uplands. As a rule, however, the best use that can be made of dry muck is to mix it with animal manures to absorb the liquids which otherwise would run waste.

Seed Corn.

In selecting corn for seed take none but the best and most perfect ears, and from these reject the kernels from the tips and butts. The experiment has been tried of planting seed from the butt and tip and with good success, and it was impossible to detect the any difference in the results from that planted from the centre of the ears; but should such a test be continued for a succession of years, then it would be found that the corn planted from the tips and butts had degenerated, and from the tips particularly, while that from the centre had continued to improve. If you desire to make great improvement in your corn, plant half an acre by itself in a perfect square, and before either the silk or tassel show themselves, remove all the stalks that do not bid fair to produce good ears. If you take two-thirds of the tassels you will then leave enough to fertilize all the others. Be also sure to remove all suckers, leaving none but the very best stalks. By pursuing this course for a few years you will find that you have made a great improvement in your corn.

The Wheat Crop of 1880.

The estimated total yield of wheat this year in the United States, as shown by reports up to September 25, is 465,691,000 bushels. These figures, however, are likely to be reduced by later and fuller returns, and the crop is, therefore, set down as approximating 455,000,000 bushels. The needs of the country for food, seeds, etc., are placed at 265,000,000 bushels, leaving a surplus of 190,000,000 to be sent abroad. After a comparison of the surplus and deficiencies in foreign countries, the same authority estimates that we shall have some 27,000,000 bushels more than we can find a market for. The surplus, however, is relatively very small, and it is quite possible that it may disappear with an increased consumption at home and abroad. It is, therefore, very probable, if these figures prove to be accurate, that prices for wheat will not sensibly decline. There is no reason on the other hand to anticipate any marked advance and the indications are that the fluctuations either way will be comparatively slight. The shortness of the corn crop in this country will, it is estimated, have effect in sustaining the price of wheat; while a decline in prices would be followed by an increased demand, which would tend to keep up the market rate. Our farmers may, therefore, congratulate themselves that the price of wheat bids fair to be maintained, with a possibility even that it may advance somewhat.

Our Agricultural Progress.

Mr. S. B. Ruggles, of New York, has completed a work on agricultural progress of the nation in cheapening the food of America and Europe. It exhibits a growth in cereal products from 615,000,000 bushels in 1840 to 802,000,000 in 1850, 1,238,000,000 in 1860, 1,587,000,000 in 1870, 2,187,000,000 in 1877, and 2,431,000,000 in 1879. The annual product increased from $3,965,000,000 in 1850 to $7,977,000,000 in 1860, and $11,000,000,000 in 1870, yielding, after paying for labor and wages, a net amount of $2,170,000,000, being nearly 20 per cent. on the total. The book states that there are 400,000,000 acres of land immediately available north of the Ohio river, which can produce in wheat or other equivalent cereals at least 4,800,000,000 bushels annually to meet the demands of a greatly increasing population.

Weeds.

The farmers should be deeply interested in the two leading points concerning weeds: How they get into the fields and gardens, and how to get those out that are already in. Many of the seeds of weeds are sown with those of the crop, especially is this the case with those that are nearly of the size, color, etc. of the grain and the grass seeds. Great care should be exercised in sowing only pure seeds. If the weeds are already in the soil, the quicker steps are taken to eradicate them the better. Let no weeds go to seed. This will end the annuals. With perennials the work is more difficult, but it should be remembered that they are much more easily destroyed when young. Cut frequently and dig out by the roots when possible.

Success in Wheat Growing.

Mr. D. S. Curtiss, in his new work on "Wheat Culture," concludes by saying: "Highest success in wheat-growing involves and presumes skillful and intelligent management in other parts of farming, so that he who uniformly secures superior results with wheat and does not impoverish his land or soil, cannot well be other than a good farmer, able to secure profitable results in all other farm operations. Hence to become an eminent wheat-grower is to become a complete farmer." Mr Curtiss knows of what he speaks, as he has had a wide experience in wheat culture.

English and American Implements.

The English manufacturer makes his implements heavy, without much regard to the strength needed. Their forks, whether for spading, or hay, or manure forks, are much too heavy, and are most unwieldy, as compared with the neatly-shaped, lightly-built, and easily handled American forks. The English plow is usually three times as heavy as ours, twice as long, and much less easily handled. The cradles they use in cutting their grain would not be used by one of our reapers, and so with many other of their heavy farm implements.

HORTICULTURE.

Orchard Products.

We find in print a statement which is apparently reliable, that the orchard products of the United States have a market value annually of $16,000,000. These are chiefly apples, which crop has become a regular export to foreign countries, and is highly esteemed and in great demand in Europe. It is the only one of our orchard products that has thus risen to the highest level commercially, and the trade is a permanent one, and likely to increase in proportion to the progress of the production. The orchards of the Northern States have for many years past received a great deal of attention both from practical and scientific farmers and horticulturists, and the results are seen in the excellence of the food crops, and more especially in the magnitude of the American apple trade. It is only within a few years past that our trunk line railroad companies have deemed it advisable to cultivate this trade, in the same way they have done the commerce in breadstuffs, cattle, fresh meat and provisions, by multiplying facilities for warehousing and shipment to Boston, New York, Philadelphia and Baltimore. In proportion as these facilities have been augmented and multiplied, the production of apples in the Northern and Western States has become more and more extensive and profitable, thus adding materially in the diversification of our agriculture. American apples are highly appreciated in England, and always meet with a regular demand from the leading British markets.—*Germantown Telegraph.*

Scabby Potatoes.

Scab on potatoes is produced by minute animals which have not yet been thoroughly studied. The scab shows itself first on the surface of the potato, in rough spots, which afterward become raised, like blisters. These collapse subsequently and leave irregular holes or pits of various sizes in the substance of the tuber. They do not seem to be confined to any particular age of the plant, as they make their appearance on very young tubers, and in other cases not before their full development. About the predisposing conditions and prevention of these parasites little is known. Ashes and lime do not prevent or destroy them. I have found them plentiful in fields where ashes had never been applied, and also with and without swine, horse, or cow manure, where potatoes had not been planted for several years. In this case like does not produce like, for I have seen scabby potatoes produce splendid scab-free potatoes; on the other hand, some soils, which seem to be saturated with scab, will produce scabby potatoes, no matter what seed is used. Some varieties are more liable to scab than others. A row of Buckeyes were almost eaten up by scab, while other varieties close by were free from it. Little as is known of the nature of the scab, I think I have proved to my own satisfaction, at least, that since the exclusive use of commercial fertilizers my potatoes have become entirely free from scab and better than with the use of barn-yard manures.

When to Transplant.

There is a great deal of difference of opinion among fruit growers as to the time to transplant fruit trees. It is natural that this should be so, since their views are generally based on their experiences in different localities.

It may, however, be stated as a general proposition, that when the climate will allow it, fall transplanting—that is from the fall of the leaf till the middle of November is to be preferred. The wounds made in the process of removal heal more quickly then, and the tree, having become fixed in its new position, is ready to begin growing at the first dawn of awakening spring.

In the more northerly parts of the Union, however fall transplanting would be pretty sure to be followed by the death of the tree, and it becomes a necessity to defer the removal till spring. But the planting should be done just as early as the condition of the ground will admit, so that the roots may get hold of the soil and begin to draw up life into the tree as quickly as possible. If deferred till late in the season, the tree will be less able to resist the dry weather of summer, and may thus suffer irreparable injury.

It is easy to determine, therefore, by the exercise of a little common sense, aided by proper observation, whether it is best to transplant in fall or spring. No more explicit directions than those we have indicated can safely be given.—*Examiner and Chronicle.*

Enriching Orchards.

Any farmer who has been accustomed to raising apples and has been uniformly successful, will doubtless say that if he expects to get good crops he treats the orchard as he does for any other crop—he manures it, and he finds that a manure that will do for most other crops will do for the crop of apples. It is the neglect to manure orchards at all that causes them to bear so poorly and the trees to look in bad condition. There is nothing better than wood ashes for orchards, if we had the ashes; but nearly everybody burns coal except in certain out of the way sections, and we must therefore resort to something else. Next to wood ashes there is no other fertilizer better than barnyard manure. A liberal application of this, it only once in three years, with careful pruning and scraping of the trees, and ferreting out the borers and all other insects which lay concealed under the bark, will soon make a change in the productiveness of the orchard. October and November are the best months to apply the manure and give the trees a good scraping off of all old bark. If the trunks were washed with whale oil soap, say one pound to an ordinary sized bucket of water, there would not be many insects left alive after the operation.—*Germantown Telegraph.*

Protecting Plants and Shrubs.

There is one principle which should not be forgotten, whatever be the nature of the covering applied

to tender plants, more especially to the woody portions or parts above ground. This is, that the *exclusion of moisture* is an important object, without excluding air. Ligatures are sometimes left on inserted buds for protection, and more usually destroy the buds by retaining water like a sponge. Closely wrapped straw operates in the same way, as well as by excluding air, which is often important. Roots and stems like those of the grape, which will bear a greater degree of moisture are partial exceptions. Roots even are often destroyed when in a too moist soil; and there is no doubt that many tender herbaceous perennials would survive the rigors of our winters if in earth with a dry bottom and sheltered from rain.—*Albany Cultivator.*

Production of Basket Willow in Berks.

Solomon Shearer, near Tuckerton, produces about two tons of basket willow annually, and Christian Shearer, his brother, about one ton. Many other parties in Berks county also grow basket willow and realize a handsome income annually on its sale. The profits from $40 to $60 per acre, but little cultivation being required. Mr. Henry B. Fisher, residing along the Tulpehocken creek, in Spring township, realized $15 from one-fourth of an acre planted with basket willow.—*Reading Times and Dispatch.*

Domestic Economy.

How to Carve a Turkey.

The gentleman who does the carving firmly takes the carving knife in his right hand, then takes up the steel and sharpens the knife a little thereon; then, with the left hand, takes the fork and inserts it in the breast of the turkey, one tine on each side of the breast-bone, just about where the highest point is. With the turkey on its back, with the fork well in the bird, with the head of the turkey towards his left hand—without any fussing, spattering, haggling or sawing—he cuts off the first joint of the wing farthest from him. Then he cuts away the second joint, giving him fair sweep with the knife, when comes the work of shaving from the breast.

After the wing is cut and carved, with a nice dexterous movement he cuts the first joint of the leg, letting the drumstick fall neatly down upon the side of the plattern; then he shaves off three or four slices from the second joint, that there may be enough dark meat to go around. Then he cuts the second joint out, all in a nice artistic manner, being careful not to take out the fork or loosen his hold thereon.

After he has taken off the wings and the leg and duly carved them, he lifts the turkey, changes ends with it, and serves the other side in the same way, taking care not to spatter the gravy or flip the dressing all over the table and into the laps of the guests. After the limbs have been cut away, in thin slices he shaves the breast down; with the point of the knife carving out all those tid-bits which people of good taste generally like. Then he cuts into the dressing, and, if he pleases, follows up the work of dissecting without having taken the fork from the breast-bone, till the bird is completely disjointed. In order to do this well, he must have a steady hand, a sharp knife; one with a stiff back preferred. The point wants to be keen and substantial. He must do the work quickly—in less time than has been occupied in writing this much of this article.

Then he asks the first lady on his right what part of the turkey she prefers; if she will have it with or without dressing, gravy, etc., etc. When she is helped he asks the first lady on his left and helps her; then the second lady on his right, then the second lady on his left, and so on to the foot of the table. He then helps the gentlemen in the same manner, assisting his wife (if he has one,) who should be seated at the foot of the table, last of all, except himself.

Never cut a turkey, or meat of any kind, in chunks; always cut it in slices. Never undertake to carve with case knife, or a dull knife, or one limber like a piece of tin, for such a performance will only secure for you the name of a "botch," and for your guests any quantity of grease spots and just cause for complaint.

Setting the Table.

Miss Rorer gave the third lesson of the course at the New Century Cooking School, Thursday afternoon. The principal dishes prepared were lobster chops, lobster salad and sponge cake. Relative to the former, the teacher said: "The lobster is boiled twenty minutes, cooking very slowly, as all meats should, if you wish them tender. There is a great art in opening lobster. It should be taken by the head and tail, and then with a quick sharp twist the shell falls apart, so that the meat can be picked out without difficulty. All parts are good except the stomach, which is situated immediately beneath the head, and the vein running directly down the back. This vein is supposed to be poisonous, and of course should be carefully removed.

For lobster chops, take a cup of milk, add to it, when it has come to a boil, two tablespoonfuls of butter, two of flour, which have previously been rubbed together; take from the fire and stir in the yolks of three eggs, which have been slightly beaten, and one cup of chopped lobster, and return the whole to the fire for two minutes, in order to cook the eggs; turn it out on to a plate to cool; should be permitted to stand at least two hours, after which make up into forms to resemble mutton chops, using the claw to represent the bone of the chop. You should keep your hands well floured while moulding the chops. After dipping them, first in egg, then in crumbs, they should be placed in a frying basket and into a pan of fat of sufficient heat for a white smoke to be detected upon its surface.

For lobster salad, take lettuce leaves, arrange them upon a flat dish and lay on the lobster picked—for salads, lobster should always be picked in pieces about an inch in size—over it spread a Mayonnaise sauce. Scattering the coral of the lobster upon the top finishes the garnishing, and the dish is ready for the table. Various other dishes were prepared for and tested by the audience, among which was sponge cake, made as follows: Six eggs, one-half pound of sugar, six ounces of flour, and the juice and rind of one lemon.

Sauer Kraut.

We know of no better authority on making kraut than Major Freas, of the Germantown *Telegraph*, who says: "The best sauer kraut we ever ate we made ourselves for many years, and for a considerable time with our own hands, and always from Savoy cabbage. It was manufactured in this wise: In the the first place let your 'stand,' holding from a half barrel to a barrel be thoroughly scalded; the cutter, the tub and the stamper also well scalded. Take off the outer leaves of the cabbage, halve them, remove the heart and proceed with the cutting. Lay some clean leaves at the bottom of the stand, sprinkle with a handful of salt, fill in half a bushel of cut cabbage, stamp gently till the juice just makes its appearance, then add another handful of salt, and so on until the stand is full. Cover over with cabbage leaves, place on top a clean board fitting the space pretty well, and on top of that a stone weighing twelve or fifteen pounds. Stand away in a cool place and when hard freezing comes on remove to the cellar. It will be ready for use in from four to six weeks. The cabbage should be cut tolerably coarse. The Savoy variety makes the best article, but it is only half as productive as the Drumhead or Flat Dutch.

Girls, Go Marketing.

We have schools of almost every kind save one, and that a very important one. A cooking school is admirable in its way, but every good cook should know not only how to prepare a dish, but how to select the materials as well. Hence every housekeeper should understand marketing, for the art of buying the right kind of material for the table is almost essential as that of being able to cook it properly. The woman or man who is not familiar with this duty is always liable to be victimized. Girls should be taught how to do the marketing. It will benefit them greatly, in a healthful as as well as economical point of view. To rise with the sun or earlier, take the basket or kettle, repair to the market and lay in the provision for the day, or for two or three days not only imparts bloom to the cheek and strength and elasticity to the body, but it is a first step in the direction of business habits, which every American should acquire. It will make them more practical and in more senses than one, better quallify them for the discharge of the matronly duties which are certain to be imposed upon the majority of them.—*Philadelphia Star.*

Apple Custard Pie.

I read a receipt in Dr. Chase's receipt book for making apple custard pie, and, as at this time of year apples are getting scarce, thought I would try it, and as it is much better than I expected, could not but wish the readers of your paper had the benefit of it. I think it better than a lemon pie, and much cheaper; in short, I think no one need be without a wholesome, toothsome pie, as long as we can get apples; and Dr. Chase says dried apples are equally as good, by making them a little more juicy. And now for the receipt: Peel some apples, and stew until soft, and not much water left in them—Dr. Chase says, rub through a colander, but I mashed mine with a spoon to save time. Take of this pulp what you think it will need for a common-sized pie, and add two beaten eggs, one-third cup of sugar, and nearly one-third cup of butter; season with lemon extract; bake with one crust, same as custard pie, and, if you frost it same as a lemon, it will very easily pass for one. I told my husband to praise it up just as he would away from home, and he said it was *super-excellent.*—*Mrs. N. W.*

Slaughtering Swine.

A cold northwest wind with a clear sky indicates suitable weather for the slaughter of hogs, but beware of an east wind, no matter how low the thermometer may fall, for it implies an unsettled condition of weather with prospect of a moist temperature. While a very cold temperature is not desirable it should be sufficiently low to secure a freeze at night. A mean daily temperature of 40 degrees is considered favorably by experienced butchers for killing pork.

Household Recipes.

Frying Oysters.—A very nice and, to me, a new way to fry oysters makes them delicious. It is to make a batter of flour and oyster liquor, a very little salt and pepper, and add what you think sufficient of baking powder, well stirred in, then add the oysters and fry as usual.

Cooking Potatoes.—A little inattention or carelessness in the cooking will spoil any dinner. See that the water is boiling when your potatoes are put in. Many cooks in their hurry will often neglect it. When you slice white potatoes, put them in boiling water and add considerable salt. When just done drain the water off completely, and to have it just right, use the best milk and butter you can put in them.

Hot Cakes.—As to different mixtures of buckwheat cakes, coarse flour makes a pretty good substitute and many use bran flour, of course made in the same way. We prefer buckwheat when we can get it. A little sugar added to the batter browns the cakes nicely.

To Bake Fish.—Rinse the fish in cold water, wipe the inside dry and fill it with stuffing, then sew up the edges, and place it in a dripping pan with a very little hot water. Melt a tablespoonful of butter and pour over the top, then sprinkle lightly with salt and pepper, and lay over it a few strips of salt pork. Bake in a hot oven, and *baste very often*; when done serve with the gravy from the pan, poured over it, and Worcestershire or some pungent sauce, so that each may season to taste.

For Stewing Oysters.—1. Strain the oysters through a colander; put the liquor in a saucepan, let it come to a boil and skim; put in the oysters, a large piece of butter, pepper and salt, when boiled up add to two quarts of oysters one cupful of milk; serve immediately. 2. Wash the oysters in a colander; put in a sancepan half a cupful of boiling water, one large tablespoonful of butter, pepper and salt; when boiled, add the oysters, let them boil; add milk or not, according to taste.

French Rolls.—Sift a pound of flour into a pan, and rub it into two ounces of butter, mix into it the white only of three eggs, beaten to a stiff froth, and a tablespoonful of strong yeast; add a saltspoonful of salt and sufficient milk to make a stiff dough. Cover it and set before the fire to rise. It should be light in an hour. Then put it on a paste-board, divide it into rolls or round cakes; lay them in a floured pan and bake them about ten minutes in a quick oven.

Rice Bread, for Breakfast or Tea.—To one quart of boiled rice allow one pint of sifted flour, two tablespoonfuls of butter; four eggs, teaspoonful of salt and sufficient sweet milk to make a *very thin* batter. Bake in a greased pan, either tin or earthenware. Send to table hot and eat with butter.

French Lip Salve.—Mix 16 ounces of lard, 2 ounces of white wax, ½ ounce each of nitre and alum in fine powder; alkanet to color.

Camphor Ice.—Oil of sweet almonds, 2 ounces; spermaceti, 4 ounces; white wax, 2 ounces; camphor, ½ ounce; melt them over water bath; run into moulds.

Wash to Cleanse the Hair and Scalp.—1 teaspoonful powdered borax; 1 tablespoonful spirits of hartshorn; 1 quart soft water. Mix all together and apply to the head with a soft sponge; then rub the head well with a dry towel. Use once a week.

Barbers' Shampoo Mixture.—Dissolve 1 ounce salts of tartar in 1 quart of soft water; sprinkle freely on the head and rub well till a lather is formed; wash off with clean water. Bay rum can then be used if desired.

Blonde or Flaxen Hair Dye.—Mix in 10 ounces distilled water, 1 ounce acetate of iron, 1 ounce nitrate of silver, and 2 ounces nitrate of bismuth; moisten the hair with this mixture, and, after an hour, touch it with a mixture of equal parts of sulphide of potassium and distilled water.

Golden Brown Hair Dye.—A solution of sulphate of copper (blue vitriol) followed by a solution of ferrocyanide of potassium, gives an extremely rich golden brown to light hair, when the process is expertly managed.

To Cure Hams.—Cover the bottom of the coarse salt, lay on on the hams with the skin side down, sprinkle over fine salt, then another layer of hams, and so on until the cask is full. The cask should hold from 64 to 120 gallons. Make a brine as follows: 6 gallons water, 9 pounds salt, 4 pounds brown sugar, 3 ounces saltpetre, 1 ounce saleratus. Scald and skim, and when cold pour the brine into

the cask until the hams are completely covered. Let the hams remain in this pickle for three months; a little longer would do no harm. A handful each of mace and cloves scattered in the brine will improve the flavor of the meat.

To Cure Beef and Pork.—To each gallon of water add 1½ pounds salt, ½ pound sugar, ½ ounce saltpetre, and ½ ounce potash. Boil these together until the dirt from the sugar rises to the top and is skimmed off. Then put it into a tub to and when cold, pour it over the beef or pork, to remain 4 or 5 weeks. The meat must be well covered with pickle and should not be put down for 2 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. Ham cured in this way may be smoked as usual, and will be found excellent.

To Keep Meat Fresh.—Suspend the meat in a vessel, on the bottom of which some strong acetic acid has been poured. In this way the meat may be kept fresh for a considerable time.

Cheap Bay Rum.—Saturate a ¼ pound block of carbonate of magnesia with oil of bay; pulverize the magnesia, place it into a filter, and pour water through it until the desired quantity is obtained, then add alcohol. The quantity of water and of alcohol to be used depends on the desired strength and quality of the Bay rum.

Imitation Bay Rum.—Mix 10 fluid drachms oil of Bay, 1 fluid drachm oil of pimento, 2 fluid ounces acetic ether, 3 gallons alcohol, and 2½ gallons water. Filter after 2 weeks repose.

Jockey Club Bouquet.—Mix 1 pint extract of rose, 1 pint extract of tuberose, ½ pint extract of cassia, 4 ounces extract of jasmin, and 3 ounces tincture of civet. Filter the mixture.

Bouquet de Millefleurs.—Mix 1 pint extract of rose; ½ pint each of the extract of tuberose, jasmin, violet, cassia, and orange flower; 4 ounces essence of cedar; 2 ounces each of the tinctures of vanilla, musk and ambergris; ½ pint essence of rose; 1 ounce attar of bergamot, and 10 drops each of the attars of almonds, cloves and neroli. Filter the mixture after letting it stand for a week.

Bouquet de Rondeletia.—Mix 2 ounces attar of lavender, 1 ounce attar of cloves, 1 ounce attar of bergamot, 3 drachms attar of roses, 4 ounces each of the tinctures of vanilla, ambergris and musk, with 1 gallon deodorized alcohol. Filter after a month's repose.

Live Stock.

Bran for Cows.

Ten years ago I was of the opinion that bran was a poor thing to feed cows, but I always like to make experiments, and so I bought some bran and mixed it with ground oats and corn, and my wife and I watched pretty close for the result. It did not take long for us to find out that the cows gave more milk and butter, and the butter had a finer color. I omitted the bran one week, and my cows gave four quarts of milk less. I fed bran again, and in three days they gave four quarts more milk, and since that time I will tell you how I mix my feed. To six bushels of shelled corn I add three bushels of oats and have it ground together, and with every three hundred pounds of such feed I mix one hundred pounds of bran. In the morning at seven o'clock I take one bushel cut cornfodder and one bushel oat chaff; on this I put thirteen pounds of the mixed feed and eleven quarts of water; at eight o'clock I give them eight pounds of clover hay; at eleven o'clock I pump them more fresh water from a well forty-two feet deep. If it is a warm day I give each cow one bundle of cornfodder, out in the yard; if it is cold or cloudy I do not leave them out longer than they drink; then I put them in the stable and give the cornfodder in their racks. I also give each cow half a pint of meal and half an ounce of salt; this I give them every time I put them in the stable. At five o'clock in the evening I give them the same quantity of cut cornfodder, chaff and mixed feed, as I do in the morning at seven o'clock. At six o'clock I give them eight pounds of meadow hay. I also clean them with the curry comb and brush twice a week, sometimes oftener. And I also clean the stable on Tuesday, Thursday and Saturday. I keep only four cows, and at the present time I only milk three of them; one of them dropped her calf August 25th, one September 12, and one November 15th, and I make twenty to twenty-five pounds of butter a week, besides we use milk in two families.

Epizooty.

This disease has made its reappearance in this country, and in some localities in an epidemic form, which has become malignant and assumed a dangerous character, both to the animal and its attendants, all of which can be avoided by the timely use of appropriate remedies. Those who have suffered the loss of their animals, gave no heed as to treatment, except nursing, thinking it would not amount to much, but when they saw the blood come from the nostrils, they then sounded the alarm but the thief had already stolen the animal. Treatment given from the first will remove all danger in three days, and secure perfect recovery in ten to fifteen days, in ninety per cent. of all cases. Apply Caustic Balsam, one-half ounce, on the throat of the animal, and between the jaws, thoroughly rubbed in for ten minutes. One application will be sufficient to check the progress of the disease. Internal treatment is indispensable to aid nature to throw off the poison and eradicate the disease from the system. Ferrum phos. 3d, one ounce for each animal, dissolved in one pint of soft water; give one-half ounce at dose three times a day. In severe cases a dose should be given every three hours until the above quantity has been consumed, which will cause the animal to throw off profusely. Then follow with kali mur. 3d, one-half ounce to one pint of water; mix; give one-half ounce three times a day. If the animal should break out in postular eruption, cracked heels, scratches, etc.; use kali sulph. 3d, instead of kali mur. in the same form, which should always be given after the use of ferrum phos., to complete a cure.—*Dr. J. W. Johnson, V. S. in Ohio Farmer.*

Sheep in Winter.

Two extremes should be avoided in the matter of shelters. One may be insufficient, while the other may be so close as to be unhealthy. The majority of mistakes are with those who shelter insufficiently. In such instances more food is consumed than would otherwise be required, and no corresponding benefits accrue. The shelters on the sheep farm should be made to increase in size as rapidly as the flock multiplies its numbers.

The water supply should be carefully looked to. A flock of given number will drink more water in winter than will be needed when on pasture. If such an arrangement can be economically secured, access to water twice a day is better than but once. This for two reasons—first the more timid animals which are likely to be held back in the morning by their stronger fellows have a chance when the latter are not so eager; and, secondly, all danger from over-drinking of cold water is obviated. Uses of snow in lieu of water should be forced upon the flock only under the extremest necessity. Stock will live under such circumstances, but satisfactory thrift will not be secured.

Ewes in lambs should, as far as practicable, be fed and sheltered separately from the non-breeding animals, as the crowding and more rapid movements of the latter are apt to result injuriously, while such separation makes more convenient certain little attentions to which breeding ewes are entitled as the weaning season approaches, and which may be profitably accorded to them.—*National Live Stock Journal.*

Percherons for Small Farms.

The West appears to be taking all the Percheron horses. But it seems to us that they are just what the 10 to 50 acre farmers of the East want for a horse of all work. A one-horse team is sufficient on a small farm if the right kind of horse is chosen—heavy, yet active; docile, yet spirited; a good walker, yet able to trot at a brisk gait; strong, well broken, willing and safe. It is easy to make just such horses of the Percherons. In fact they are all that, but the breaking by nature. Such a single horse on a small farm is better for nearly every purpose than a pair of light horses. On a truck farm he fills the bill in every particular, except for running the horse-hoe in narrow rows; and if a second beast is needed for that use, a small mule, well trained, is better than any horse. We think a lively demand for Percherons will spring up among small farmers. Let Percheron breeders keep this in mind in training them.—*Rural New Yorker.*

Ewes for Breeding Early Lambs.

The production of such as are suitable for this purpose, is unquestionably one of the most profitable things in which Western farmers can engage, as they are sought for in large numbers in the Eastern States during the months of August and September, to raise early lambs for the following Spring market. Such ewes are cheaply and easily bred from grade Merino or any common stock if put to a Cotswold ram, as on account of his greater size and fatnes, he imparts these qualities in a superior degree, even to his half-bred offspring. These, when taken to the Eastern States and crossed there by Southdown rams, produce an excellent sort of early lamb, which, if well fed with its dam, is ready for market in May or June, and then bring an extra high price. Lambs which weigh from thirty to forty pounds at three to four months of age usually bring from $7 to 10 each. At this price it is very profitable raising them.—*From the Empire State Agriculturist.*

An Equine Monster.

A horse bred in Ohio standing twenty hands and one inch—six feet and nine inches high—and weighing 2,450 pounds, has been taken to New York as a curiosity and sold to Barnum. This is believed to be the largest specimen of horseflesh ever exhibited in this country. The horse is a dark bay, without spot or blemish, and a fine animal in every respect. Other monster horses have been known that approach this one in height. A span of Canadian horses, sent to the Centennial Exhibition, measured 75 inches. Another in New York was 79 inches in height, but his owner found him useless for the road or draught, as he could not fill out his great anatomy by any system of feeding. The late Pope Pius IX owned a horse that was 73 inches high, and another in Hanover was nearly as high. One of these lived 36 years, an unusual longevity for the equine race.—*Roch. Ex.*

Fair Tests for Draft Horses.

A horse should be at the best when in the harness; it is there that he does the greater part of his work, and it is of prime importance that trials in the harness be more frequently made at our fairs. Thousands of breeding stallions are never broken to harness, and, if so, are never taught to handle themselves properly with a heavy load. A spirited horse out of the harness does not always mean one that will stand the test of hard work. Breeders of draft horses very generally make their selections entirely by sight, and not from results of trials of strength and endurance. It is our belief that much more stress should be put on the action of the animal when at work; and any system of testing the horse in the harness, with a heavy load, will lead to an improvement in draft horses.

Draughts of Cold Air in the Stable.

Horses are quite sensitive to chilling draughts of air blowing upon them, and especially upon their heads; hence, in the construction of stables this should be born in mind. Many stables have the horses face an alley, along the sides of which are doors, or a large space is left entirely open. In such cases, whenever the rear stable door and the one leading out of the alley are open, the horses stand in a chilling draught from which they cannot escape. Horses, like many people can stand much wind in an open field, but will catch cold while in a draught only a short time. With proper ventilation, the doors of the stable should be kept closed in cold weather that no draughts may occur.—*From the American Agriculturist.*

Norman Stallions for Illinois.

The steamship Denmark, which arrived at New York on Friday, brought forty-two Norman stallions, consigned to a firm in Illinois, and to be used for improving the stock in the West. There were originally forty-nine on the Denmark, but three stallions, two mares and two colts died on the voyage on account of the incessant rolling and pitching of the vessel, caused by the unusually heavy weather. The prevailing color is an iron gray, though a number of them are black. They have very strong, thick necks and shoulders, sloping hips, large legs, well covered with hair, and full and long manes and tails. They weigh from 1,600 to 2,000 pounds, and stand 17 to 18 hands high. The horses in this lot cost from $600 to $1,000 each.

How to Test Cows.

The difficulty of establishing the value of each cow in the dairy is not as great as is generally supposed. The method usually employed is to weigh each cow's milk upon a spring scale as soon as it is drawn, and before pouring it into the general receptacle. A small record book, containing the name of each cow, and column for date, weight of milk, etc., renders it a comparatively easy matter. To get a fair average through the year, one week's trial for each month is sufficient. In making tests for butter it is only necessary to set each cows milk separately and churn it by itself, which will give the yield of butter for a certain quantity of milk.—*Prairie Farmer.*

A Remedy Against Worms in Pigs.

Flour of sulphur is a simple and effective remedy against worms in pigs, and the animals readily partake of it, when mixed in gruel or other sloppy food. For pigs under three months old, a teaspoonful is a dose, and for older ones a small tablespoonful. It may be given four days in succession, morning and evening, and repeated every other week. Give plenty of sour milk, green food, celery tops, acorns and sliced raw onions. Avoid stagnant and putrid water. Give access to charcoal and ashes.—*Western Rural.*

Horseback Riding.

Fifty or a hundred years ago the saddle was quite sure to be found in the farmer's barn, as one of the necessary articles of the farm—but now it is too much put to one side for the harness and buggy. At this season of the year, when the roads are bad, the saddle should be more generally used, on the ground of both economy and comfort. Boys, and girls too, should learn the art of horseback riding; as far as possible every farmer should have a horse suited to the saddle.

POULTRY.

Hen Lice and Kerosene.

I wish to tell your readers not to be afraid of using kerosene in poultry houses. It has killed all the lice and bed-bugs in my hen houses, and did not injure the fowls in the least. I was in Europe in 1878, and both these vermin got into my poultry houses in some way, and last year there was tens of thousands of red and grey lice and the common beg bug. Every crevice and nest was literally alive with the filthy creatures, and my poultry looked to be (and were) in a sorry plight. I could not go into my house for months without getting covered with the small grey lice. I really dreaded to go near my poultry or to touch them. I tried all the remedies and failed. My own mind suggested common kerosene, and I tried it quite cautiously at first. I found it certain death to the bugs and lice, I feared it would injure the hens also. The results were, however, that in a few weeks (not one or two dressings) I utterly destroyed the foe, and now there is not a louse in the nests, or on the roosts or fowls. I use the kerosene quite fearlessly, as I have not found the least indications of injury to my fowls old or young. I pay ten cents a gallon for the common kerosene; keep a two gallen can in my henhouse, and every time I clean it out (twice a week), I sprinkle the liquid on the perches and over the floor, through a small in the cork of the can. I have proved by actual test that kerosene will kill lice, etc., but will not hurt the fowls.—*Country Gentlemen.*

Young Chickens and Insects.

The practice of excluding chickens from the garden, especially in mid-summer, is bad both for the chickens and for the vegetables. The young chicks will not thrive in confinement, as in freedom, and the growing plants are in a good measure protected from insects by the chickens. We have never succeeded better with young broods than by putting them, with the mother, in the vegetable garden. The mother is kept confined in a coop, and the chickens have free access to her through the slats. She follows her instinct in scratching over the ground under the coop for worms and grubs, and after a few days the coop is pushed along to new soil. The chickens are regularly fed with scalded meal, or boiled screenings; they supply themselves with animal food from the garden. The chickeus are too small to do any harm to plants that are well started, and yet they pick up an immense number of insects. The more highly the garden is manured, the more rapidly do insects multiply, and the greater is the need of birds and fowls to keep them in check. The chickens can go beneath cucumbers, squashes, beans, tomatoes, etc., and pick the eggs and worms from the underside of the leaves, where they are generally found. They eagerly chase every moth and bug that flies, and if one alights within striking distance, it is sure to be devoured. When the chickens are large enough to do injury to the plants, they are easily remove to other quarters.

Does It Pay to Winter Turkeys.

The general practice in the poultry districts is, to fatten the early broods of turkeys for Thanksgiving and the latter ones for Christmas, and to send each lot to market in a lump. The advantages of this are that the warmer weather of autumn is favorable for fattening, and less food is consumed. The money also comes in a pile, and much labor is saved. But occasionally we find a farmer who feeds his turkeys straight on through the winter, selling in small lots, when he can get his price. When we ask him for his reasons, he tells us that there is always a difference in selling farm produce at the buyer's price, and in selling it at your own price. The turkey crop is mainly disposed of at Christmas—and he can alway get a better price if he waits until February and March. The turkeys are all the while growing, and are wanted in the village markets at reasonable paying prices. There is also a good demand for them as breeders in March and April. It pays him to winter his flock.

Eggs for Hatching.

There are many theories advanced and ways proposed, as best suited to preserve the germ of life in the egg till it can be placed under the hen. Extremes of heat and cold, and evaporation of moisture from the egg, are what we wish to avoid. In this, as in many other matters, nature is our best guide. The ground covered with leaves constitutes a natural nest, the tendency of which is to retain, rather than dispel moisture. By putting soil and leaves in a box, and placing it, with the eggs, either in the cellarway (we mean the staircase between the cellar and the next story,) according to the degree of moisture in the two positions, we get perhaps the most complete imitation of nature practicable. We should prefer in winter a room warmed artificially in which to keep eggs for hatching, were it not that the air in such a room is almost always too dry.—*Poultry World.*

LITERARY AND PERSONAL.

ANNUAL REPORT OF THE SECRETARY OF THE INTERIOR on the operations of the Department for the year ended June 30, 1880; a royal octavo of 81 pages in paper cover. A copy of this excellent report has been sent to THE FARMER, "with the compliments of the Secretary of the Interior," which we gratefully acknowledge.

We can hardly realize that an office so reeently created should comprise so much that had heretofore been the subjects of neglect, or had been distributed among other departments, where it could only obtain a partial or incidental attention. It exhibits the magnitude of our governmental operations—its progress, its great expansion, and the effort it is making in behalf of the interests of the people—their physical and intellectual development.

We have only space in this notice to mention the heads of subjects comprised in the work, from which our readers may be able to form some idea of the scope of the Department which it represents. Indian Affairs; their Agriculture and Herding; other than agricultural pursuits; Education; Indian Police; Land title in severalty; Railroads through Indian Reservations; General Remarks; The Utes; The Poncas; Victoria's Band of Apaches; The Lemhi and Port Hall Indians; The Crows; The Pi-Utes. Public Lands: Public Land Commission; Private Land Claims; Redwood and Big Trees; Timber Lands; Bureau of Railroad Accounts: Union Pacific Railroad Company; Central Pacific Railway Company; Central Branch Union Pacific Railroad; Kansas Pacific Railway; Sioux City and Pacific Railroad; Texas and Pacific Railroad; Southern Pacific Railroad; Northern Pacific Railroad Company; Atlantic and Pacific Railroad Company; St. Louis and San Francisco Railway Company; Oregon and California Railroad; Western Oregon Railroad; Missouri, Kansas and Texas Railway; Atchison, Topeka and Santa Fe Railroad; Appendix, &c. United States Geological Survey; Pensions; Patents; Education; Tenth Censns; Entomological Commissiou; Hot Springs Reservation; Yellow Stone National Park; Gas Companies; Public Buildings and Grounds; New Public Buildings; Reconstruction of the Interior Department Building; Hospital for the Insane; Columbia Institute for the Deaf and Dumb; Freedmau's Hospital. Territories: Utah; Dakota; Idaho; Wyoming, Official Salaries, &c., &c., &c., of course, merely briefly discussed, and the details of which will fill many volumes of various proportions. Verily, the Interior Departmeut is no "small salanaceous tnber," and if its business is efficiently conducted, the hands of the various functionaries must be full. In speaking of the Entomological Commission the Secretary states that "the Commission has issued three special bulletins during the year, one by Prof. Riley, on the Cotton Worm; one by Prof. Thomas, on the Chinch Bug; and one by Dr. Packard, on the Hessian Fly. We have gratefully acknowledged the receipt of the first two named, and we sincerely desire to make a similiar acknowledgment for that on the Hessian Fly, or for any other volumes on natural science—of which we have not received copies—especially the volume on the "Fresh Water Rhizopods of North America," by Dr. Joseph Leidy; and published by the Department of the Interior, nnder the authority of Congress, 1879, as a part of Dr. Hayden's U. S. Geological Survey. We have no special advocate at court, and hence must depend upon our own personal solicitations almost entirely.

"FIRST BIENNIAL REPORT of the State Board of Agriculture, to the Legislature of the State of Kansas, for the years of 1877-8, embracing statistical exhibits, with diagrams of the agricultural, industrial, mercantile, and other interests of the State, together with a colored map of the State, and sectional maps, in colors, of each organized county, showing their relation, size and location, railroads, towns, post-offices, school-houses, water-powers, etc., etc. *Second edition, Vol. VI.*" Through the kind instrumentality of H. M. Engle esq., we have been placed in possession of this excellent volume, the foregoing transcript from the title page of which conveys only a limited idea of the contents and the scope of the work. This is a royal octavo volume of 632 pages, printed on fine, heavy calendered paper, in the highest style of typographical execution, and in addition to the folded State map, and the seventy county maps, there are practically, eight hundred and twenty-five township maps, besides twenty-four full page state maps in colors, statistically illustrating the *status* and resources of the State; and a large number of finely executed engravings, illustratiug the zoology, geology, archeolgy, towns, landscapes, public structures, and farming economies of the State. When we contemplate Kansas to-day, as she is reflected thro' her first biennial report, and call to mind that only a few years ago she was engaged in a death grapple with "border ruffians and slavery propogandists" for her very existence as a State, we must wonder at the political and social insanity that attempted to a retrogressive civilization. It was one of those stupendous blunders that often overshadow and negative a long period of life, that had hitherto been comparatively blameless. We can hardly realize uow, that not many years ago it was penal offence for any one to *say* even, "*That no man can hold slaves in Kansas,*" and we may also wonder what the condition of Kansas would now be, had the effort to introduce slavery been successful. "Vol. VI." "Second Edition," are also significant terms. If we have before us only the sixth volume of the first biennial report of the Store board,—even if there snhould not be a seventh volume—the entire report may reach four thousand pages, and if the other five are like the one before us, we know of no reports that they may not be favorably compared with. The *demand* we think must be much more pressing in Kansas than elsewhere, for such works, or it would never justify a second edition. We can't say we would be offended at receiving the other five volumes, especially if there were any on Entomology.

MAN—A weekly journal of progress and reform. "Those who can read the signs of the times, read in them that the kingdom of man is at hand." New York, Nov. 1, 1880, published at No. 13, Dey-st., at $1.00 a year, 2 cents each. This is a 16 page quarto, and is the organ of the National Liberal League, and this number contains the proceedings of its Fourth Annual Congress, held in Chicago on the 17th, 18th, and 19th of September last, and also the constitutions of the National League and subordinate or rather auxiliary leagues, besides other matters partaining to the same. We confess that although we have frequently heard of this organization, and have read some little about it, we had no idea it was so "big a thiug" as it appears through the columns of this journal—for instance, 12 leagues exist in the United States, namely, in New York State, 32; Massachusetts, 21; Illinois, 18; Kansas, 25; Nebraska, 15; Michigan, 17; Pennsylvania, 10; Missouri, 10; Iowa, 11; Ohio, 9; Wisconsin, 7; Indiana, 5; California, 8; Connecticut, 3; Washington Terriiory, 3; New Jersey, 2; Texas, 2; Idaho, 2; Vermont, 2; Utah, 6; Nevada, 2; Arkansas, 2; Tennessee, 2; Oregon, 2; Colorado, 1; Minnesota, 1; Dakota, 1; Maryland, 1; Rhode Island, 1; West Virginia, 1, and Washington, D. C., 1;—almost a "Solid North." The last congress of this organization was mainly occupied in discussiug the U. S. postal laws in regard to the transmission of immoral literature, in which the champions were Col. Ingersoll and Mr. Wakeman, both able debaters, but ueither of whom, perhaps, can divest themselves of their Republican and Democratic proclivities. Radical as Ingersoll is in his views, generally, Wakeman is still more radical on this subject. Indeed, Ingersoll in comparison is a conservative, and from the *animus* of his arguments it would not be surprising to hear that he had gotten down on the other side of the liberal fence.

"OUR LITTLE ONES."—There they are, the dear pets right on the title page, and as we scan their unsophisticated countenances we are compelled to conclude that "of such" must surely be "the kingdom of heaven," and if they *are*, how infinitely far away we elders must be. This is a square octavo of 32 pages, beautifully and elaborately illustrated on every page, printed on fine calendered paper, and in the plainest, clearest and sharpest typography. Published monthly by the Russell Publishing Company, No 149 A Tremont street, Boston, Mass., and edited by William T. Adams (Oliver Optic). It nobly sustains its claim of being "bright, lively, funny, but never flippant, low or vulgar." Terms, $1.50 a year in advauce, with very liberal club rates. The December number of this charming juvenile periodical (Vol. I. No. 2) is before us, and we are compelled to acknowledge an impulsive louging to "be a boy again."

Writing stories adapted to the comprehension, amusement and instruction of children, is one of the most difficult labors, and hardly one in a thousand writers succeeds in it. The little publieation before us is perhaps as faultless as anything that usually comes under our observation. No matter how simple a tale is, however, there ought to be in it no violation of the *facts* of natural science, else we impress upon the ductile miud of childhood, errors that may require many subsequent efforts to eradicate; and just here we may be indulged in the statement that it is not a normal characteristic of the "Chipmunk" to "live in a hollow tree." This animal is strictly subteranean in its habits. If M. N. P. had taken the "Chickaree" as the subject of the story, all would have been well. True, it is a little matter, but a matter cannot possibly be so small as not to involve a *principle* in the development of mind, as important as that which may found and sustain an empire.

CATALOGUE OF BOOKS.—"Books are the food of youth, the delight of old age; the ornament of prosperity, the refuge and comfort of adversity."—*Cicero.* This is a remarkably neatly gotten up little 18mo. of 96 pages, by John Wanaker, for gratuitous distributiou, and must be a subject of gratulation to the book concerns of Philadelphia—the publishing houses at least. No doubt there is a great demand for this species of merchandise, and Mr. W. is in the effort to supply it; but if demand alone is the stimulant to such efforts, there is no reason why a department for the sale of watermelons and sausages—in their seasons—should not also be initiated. "We have the largest establishment in the world." What an Alexandrian ambitiou. It is a sad thing that there is nothing larger than the largest.

MISCELLANEOUS.

The Fruit Evaporator.

Within a few years the evaporation of fruit by improved processes, under the stimulus of the current high prices for the product, has received much attention. American evaporated fruits have gained a great reputation in Europe, and now constitute an important item in commerce. The demand, market and price within the last year has added new interest and importance to the business.

Perhaps the most significant fact in this connection is, that simpler and cheaper, yet philosophical evaporators have been constructed, and are now going into use as an auxillary to the farmer and orchardist. Fruit growers should closely investigate and turn to account upon their own premises much, if not all, of the fruit that usually goes to waste or is sold at unremunerative prices. The fact that raisins are sold here for 10 cents per pound, after a carriage of thousands of miles, and evaporated pared peaches is worth 25 to 30 cents per pound, suggests at least investigation.

Inventors, Take Notice.

To any of the readers of THE FARMER who desire a patent we would refer them to William R. Gerhart, Solicitor of Patents, at No. 34 North Duke street, (2d floor) Lancaster, Pa. He has opened communication with the Patent Office, at Washington, and is prepared to push claims with promptness and dispatch. Apr-1m

A HOME ORGAN FOR FARMERS.

THE LANCASTER FARMER,

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