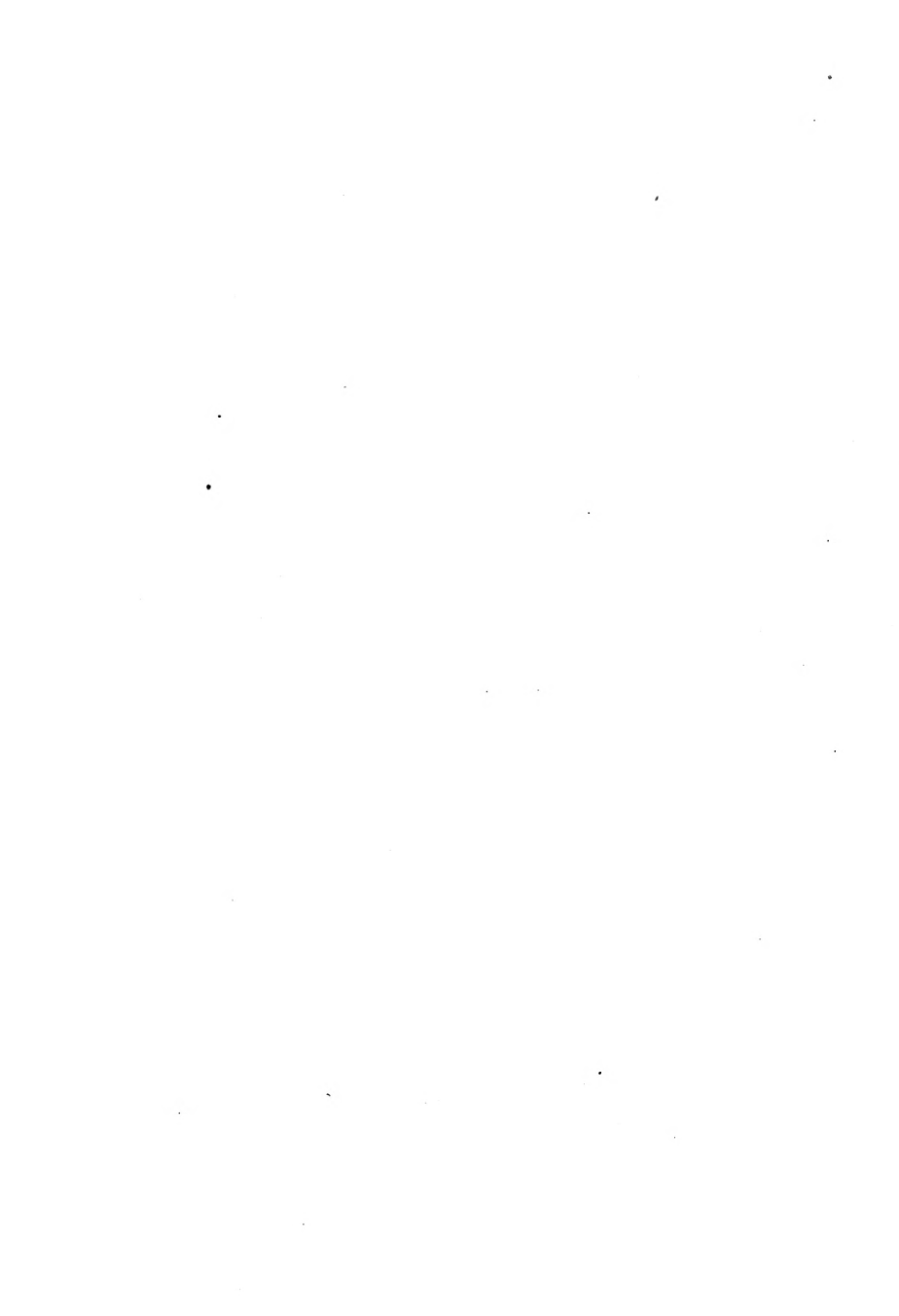


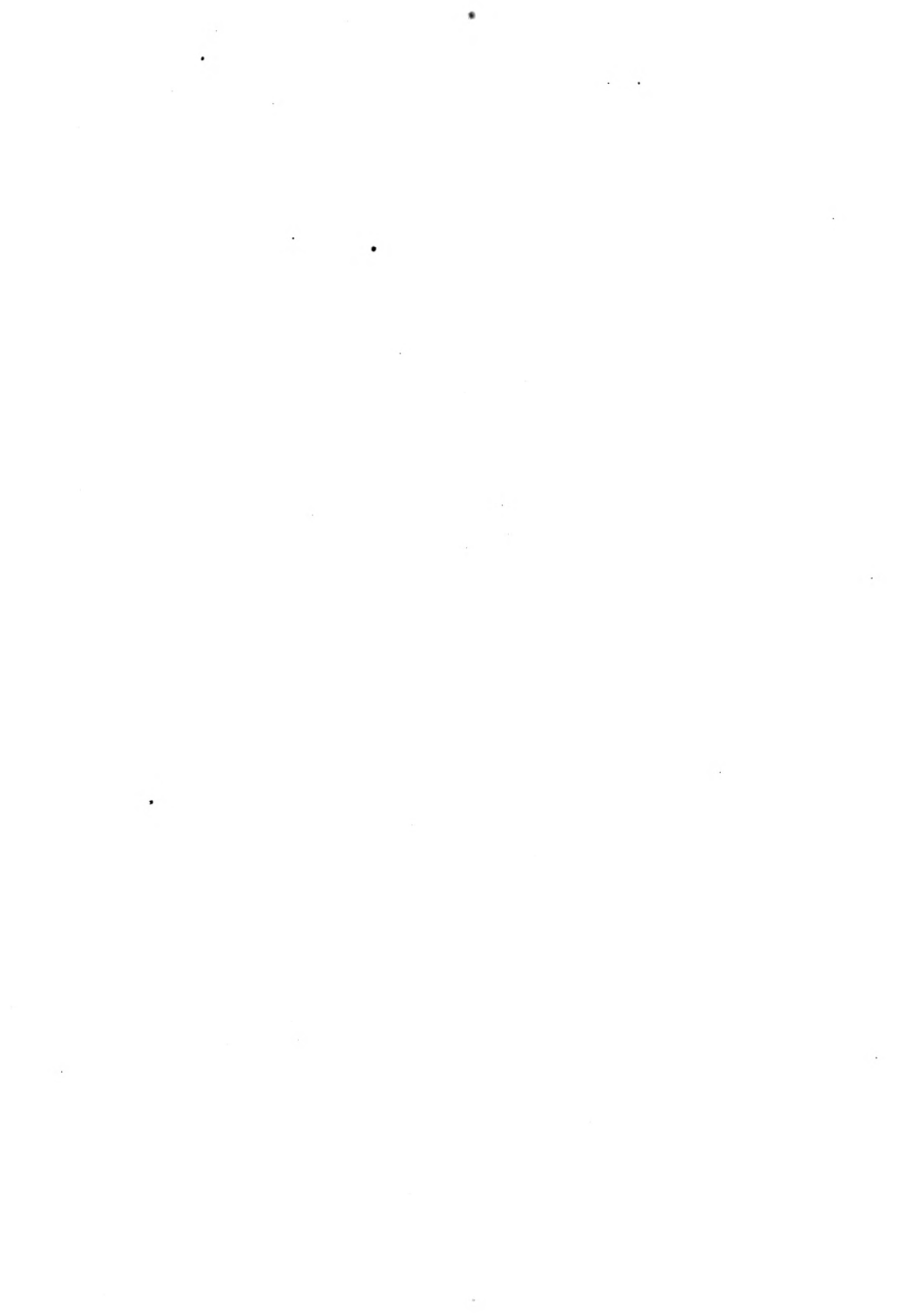
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THE LANCASTER FARMER

A MONTHLY NEWSPAPER:

DEVOTED TO

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

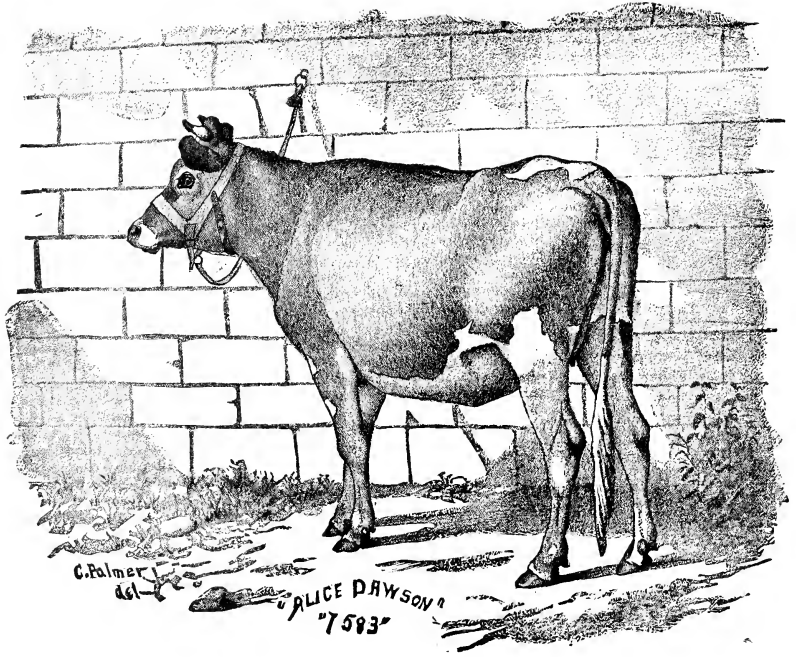
EDITED BY PROF. S. S. RATHVON

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"7593"

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Dr. S. S. BATHVON, Editor.

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On and after SUNDAY, APRIL 24, 1883, trains leave the depot in this city, as follows:

WE TWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express	1:25 a. m.	7:30 a. m.
News Express	6:25 a. m.	8:30 a. m.
Way Passenger	6:30 a. m.	10:54 a. m.
Mail Train via Mt. Joy	9:30 a. m.	11:05 a. m.
Mail No. 2 via Columbia	9:35 a. m.	11:05 a. m.
Niagara Express	9:45 a. m.	10:55 a. m.
Hanover Accommodation	9:50 a. m.	Col. 10:20 a. m.
Fast Line	1:35 p. m.	2:55 p. m.
Federick Accommodation	1:45 p. m.	Col. 2:15 p. m.
Lancaster Accommodation	2:30 p. m.	4:00 p. m.
Harrisburg Accommodation	5:30 p. m.	7:20 p. m.
Columbia Accommodation	7:30 p. m.	Col. 8:15 p. m.
Harrisburg Express	7:40 p. m.	8:51 p. m.
Western Express	11:10 p. m.	12:25 a. m.

EASTWARD.	Leave Lancaster.	Arrive Philadelphia.
Mail Express	12:45 p. m.	3:25 a. m.
Philadelphia Express	2:37 a. m.	4:25 a. m.
Fast Line	5:25 a. m.	7:50 a. m.
Harrisburg Express	8:10 a. m.	10:20 a. m.
Columbia Accommodation	9:00 a. m.	11:45 a. m.
Seashore Express	12:58 p. m.	3:15 p. m.
Jonestown Express	2:29 p. m.	5:05 p. m.
Day Express	5:25 p. m.	7:25 p. m.
Harrisburg Accommodation	6:45 p. m.	9:45 p. m.

The Federick Accommodation, west, connects at Lancaster with East Line, west, at 1:25 p. m., and runs to Federick, Hanover Accommodation, west, connecting at Lancaster with Niagara Express at 9:50 a. m. will run through to Hanover daily except Sunday.

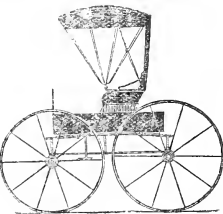
Harrisburg Express, west, at 7:40 p. m. has direct connection to Columbia and York.

The East Line, west, on Sunday, when flagged, will stop at Downingtown, Cutesville, Parkersburg, Mount Joy, Elizabethtown and Middletown.

The Johnstown Express from the west, will connect at Harrisburg on Sundays with Sunday Mail east, for Philadelphia, via Marietta and Columbia.

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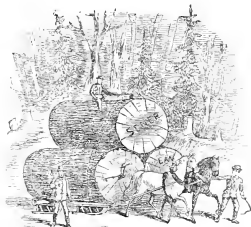
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The Lancaster Farmer.

Dr. S. S. BATHVON, Editor.

LANCASTER, PA., JANUARY, 1884.

Vol. XVI No. 1.

EDITORIAL.

JANUARY.

"And first there came a stalwart man
Dressed in an ample garb,
Around him clung the nor-west winds,
His features, cold and hard.
His mantle lined with ermine,
His scull-cap edg'd with fur,
His beard was white and prickly as
The autumn Chestnut bur.
And though his eyes the index were
Of an imperious sway,
I yet essayed a near approach
My humble court to pay.
But, ah! his freezing proud repulse
Threw me in a quandary,
I learned his frigid nature, for
His name was *January*."

This month was dedicated by the Romans to *Janus*, an old Italian mythical Deity, who was represented with two faces, looking in opposite directions, indicating that he took cognizance of the future as well as the past. The term "*Janus-faced*" is reproachfully applied to those who are guilty of practicing duplicity. Some authors are of opinion that the two faces of this mythical deity allegorize Noah and his sons, who looked back on the world before the flood, and forward on the world after the deluge had abated. This is very poetical, but as apocryphal as poetical.

A temple was erected to Janus in Rome, the doors of which, according to Rev. Dr. Brewer, in his "Dictionary of phrase and fable," were thrown open in times of peace, and closed in times of war. Dr. Noah Webster, however, in his quarto illustrated Dictionary says, that the temple of Janus "was never closed except in time of universal peace." There is a looking two ways here with a vengeance; let those reconcile it who can. At this remote distance from the origin of the name *January*—which has become the first month of the year according to the present computation of time—it might be well to consider whether this name may not have been derived from *St. Januarius*, the patron saint of the Neapolitans, who suffered martyrdom A. D. 305. It is said that two vials of his blood are preserved in the cathedral at Naples, and on the 19th of September every year (the anniversary of his martyrdom) the blood aforesaid liquefies, which is about as poetical as the conjecture above named. It is, however, more than probable that the *mas* took his name from the month, especially since the Latin name *Januarius* is said to have been derived from *Janus* the Italian god of the sun and year, to whom the month of January was sacred. The French name of this month is *Janvier*; the Prussian *Januar*; the Italian *Gennaio*; the Portuguese *Janeiro*; the Spanish *Enero*. The Capital city of Brazil—*Rio de Janeiro*—in plain English, is River of January.

Perhaps no one month could be fixed upon as a proper beginning of the year over the whole world, but it is very certain that Janu-

ary is not meteorologically nor physically the proper opening of a New Year in our latitude. The vernal equinox, or even the month of April, would be far more appropriate. Practically January is mid-winter, and when it is ushered in it finds the year old, and sometimes for two or three months it remains old, desiccated and gloomy. But when the vernal suns begin to shorten the nights and lengthen out the days, and "showery, flowery, bowery" April makes its advent, then are we readily admonished of the beginning of a bright and resuscitating *New Year*.

Custom, however, admonishes us that when the festal season is over, we have advanced upon the threshold of a new year, and we habitually look forward to its culmination in the advent of balmy spring; and, that the interval is a time of anticipation and preparation. There is an invisible revival of all nature, to some extent, in the month of January, which only needs an elevation of the temperature to manifest itself visibly. When we get over the winter solstice the Rubicon seems to have been passed, and hence forward the winter gradually succumbs.

When there is a heavy snow upon the ground during the month of January, of course, little or no outdoor work can be done on the farm, save, perhaps, the necessary attention to stock, opening roads and paths, and making things comfortable around the dwelling. But within doors there may be much to be done, and the thrifty farmer knows when and how to do it. Throughout the month of January the nights are still long—too long to be all occupied in sleep—affording the husbandman and his household an ample opportunity to store their minds with useful knowledge, or to make a record of their domestic experiences and prepare them for the local press. Now, in this month of January, is the time to "turn a new leaf," and to cultivate that *method* through which the intelligent and progressive farmer may be enabled to write a practical paragraph every day, every month, or every week during the year. After he accomplishes this he will wonder why he hesitated so long to do a thing so easy and simple.

TO CONTRIBUTORS.

There is no valid reason why half a score of practical agricultural writers in Lancaster county should not every month contribute a like number of short essays, or paragraphs, to the columns of the LANCASTER FARMER, on subjects relating to Agriculture, Horticulture, Sylviculture, and domestic economy. This is not merely *our* opinion, but it is the opinion of Agricultural editors, farmers, and writers, wherever the LANCASTER FARMER is known. There is not an editor or conductor of an agricultural journal in the country who does a knowledge that it is the intelligent contributors who do more to build up the reputation and usefulness of such a paper, than any other influence that can be brought to bear

upon it. It is true that many of them can afford to compensate their contributors, but there are thousands who contribute voluntarily, gratuitously, and from a love of *us*. Nothing would afford us more delight than to be able to compensate our contributors, but under our present circumstances, we can only accord "the will for the deed." In this connection we also desire to return our sincere thanks to those who have contributed to our columns during the year that has just passed away, and to respectfully solicit their future favors. Practical views and experiences, on any subject relating to the welfare of the human family, are not without a compensation, if it even never results in money value; because, every line a man or woman writes on what they *know* to be good and true, is a stone laid in the superstructure of mind and soul, as well as that of matter. It is a necessary adjunct to mental and moral culture, and cannot be taken away from him who once truly possesses it. It is one of those things which can be freely and liberally given away, and yet remain with its original possessor. Its accomplishment involves exercises that are eminently human; as it saves life from "rusting out," which is far less honorable than "wearing out." It is therefore for your sake, and the public's sake, more than for our sake, that we indulge in these importunities. We desire the FARMER to be a reflex of the practical thought of the farmers of Lancaster county, for *their own and the county's* sake.

1883 vs. 1884.

"While systems change, and sons retire, and worlds
Slumber and wake, Time's ceaseless march proceeds."

In the language of a local cotemporary, the year that ended on the 31st of December last was "fraught with many calamities and physical disturbances of nature. As early as January destructive floods on the Danube and Rhine, in Europe, were reported, and February saw the Ohio river at its highest point, and the cities along its banks flooded. The earthquake at Isehn, by which 2,000 persons perished, came in July, and the month following saw the Java volcanic eruptions, and great losses of life and property. An earthquake in Asia Minor and death-dealing tornadoes in the South and West in our own country added their mites to the physical horrors with which the earth was visited. Apart from these disturbances of nature an unusually large list of disasters have taken place, such as the Tivoli excursion and Brooklyn bridge calamities, losses of life by fire, vessels sunk in mid-ocean and other ills to which flesh is heir. War has also raised its grim visaged head. France has had troubles in Madagascar, and still maintains a warlike attitude towards China in the Tonquin dispute. El Mahid has knocked the Egyptian power in the Soudan into a cocked hat by the destruction of the army of Hicks Pasha. The government of Ireland is still a thorn in the side of Great Britain, and Russia adds her portion to the

year's horrors by the loss of life and property that attended the fierce persecution of the Jews within her realm. Altogether 1883 ranks well with 1666, which gained the name of "annus mirabilis" from the many disasters crowded into its small compass."

We cannot tell what 1884 may bring forth. We were already, on the second day of the New Year, admonished of a dreadful railroad disaster which occurred in Canada, destroying the lives of *twenty-seven* people and wounding *thirty* others, some of them considered fataly.

These things are almost universally regarded as *accidents*; and, by way of eminence, unavoidable accidents; but it might be profitable to look a little farther and consider whether they do not occur in pursuance of the laws of cause and effect—the same laws which rule the universe in general. In the present "pell-mell" and "helter-skelter" progress of the world, its inhabitants, in the realms of Christian civilization, have not time to ponder causes or appreciate effects, and perhaps no two persons could be found whose views would exactly harmonize on either phase of the contingent problem.

Whatever weals or woes betide us during 1884—which is yet in its pristine infancy—let us not forget that two solid physical substances of the same size and density, cannot occupy the same *vacuum* at the same time and place. And this law does not only govern matter, but correspondingly, mind and soul also.

The same violations of moral, physical, and civil law which now characterizes humanity, would run the universe "into the ground," if perpetrated there, and plunge the suns, and worlds, and stars, into a vast mass of undistinguishable chaos. There is a spiritual atmosphere as well as a physical one, and the convulsions of the latter are but reflexes of the former, which is a constitution of the adverse spheres which are carried over from this "wanton, woeful, wicked world." There will be no tranquility *here*, until there is tranquility *there*, and there will be none there until it is initiated and perfected on this probationary plane; and we had better believe it and shape our courses accordingly.

There are those who disparage *resolves*, and turning over "new leaves" in our books of conduct, but these disparagements ought to be regarded as mere moral eruptions, left to dissipate themselves in ambient air. There is virtue in a firm and rational *resolve*—there is wisdom in turning a *new leaf*. From the cradle to the grave, man's life is a physical and moral struggle, and none know it better than those who are parties to the conflict. We should have a goal, and keep our energies and our affections directed to that, and if we fall a thousand times, it is better to press onward and upward, than make no attempt to rise again. Be not discouraged; let this be the ruling principle of the present New Year. Come now—come as you are—

"If you tarry till you be better
You will never come at all."

Come out of that damaging atmosphere which ever suggests, I will do this, that, or the other thing, at a "more convenient season"—the prolific profeator of that procrastination, which is so eminent: the "thief of time."

It does not require any special amount of brains to do this, for it relates more to the affectional or will principle, than to that of the understanding. Of what avail is an enlightened intellect, if the affections are corrupt, but to multiply the pains of perdition?

Time at its best, and its longest tenure, is only the threshold of eternity, and all that men feel, and think, and do, ought to relate to that as an end; because all aims, ends and objects have their final culmination *there*, whether we see it or not—believe it or not—heed it or not.

However vaulting our ambition, however high our hopes, and however earnest our aspirations, young 1884 is only the harbinger of *possibilities*. More may be realized during its advent than is anticipated, but the chances are at least equal that we may realize less; but, in any event, we should not withhold our co-operation because things have not transpired according to our wishes. Our desires may be wrong, dwarfed and selfish, in which case our moral success may be best subserved by their "ganging alee." We are not mere animals, whose highest function is merely to thrive and grow fat; nor are we incidental factors in creation's plan; we are integral parts of a *grand, social, civil, and economic whole*, and there is a *use for every one*; and the object of the most worthy culture is to discover that use and perform it. We may not be better than we were a year ago, we may be no better a year hence, nor may we be worse; that fact furnishes no reason for an abatement of human effort. The farmer tills his soil, scatters his seed, and cultivates his crops. If they bring forth sixty or a hundred fold he rejoices. If they yield nothing he tills, and scatters, and cultivates again. The example of the farmer in this respect is one of the noblest that obtains among men. It is different with the manufacturer; as soon as his profits diminish he "shuts down," just as if the world had come to an end, and had no further need of him, and he no further need of anybody else—finally.

The pains, the penalties, and the external restraints of 1884 may subordinate us to the powers that be—may drive the devil back into the secret recesses of our souls; but there will never be a reform in human affairs until each individual begins with *himself or herself*, and in "freedom according to reason" drives the devil out.

That all our patrons and readers may engage in this moral and "civil service" during the pending year, and take courage from the declaration, "*Behold! I make all things new*," is the very summit of our wishes, and the very best "recipe" we can suggest to secure a HAPPY NEW YEAR.

FOREWARNING AND FOREARMING.

Of course, no one is particularly annoyed just at this time by "horseflies," "enterpillars," "rose-slugs" and "curculios;" but just "wait-a-bit." These "fellers" are "laying low" at this season of the year, apparently *dead*, but only conveniently sleeping the while. On half a dozen occasions, and from half a dozen different localities, within the past two or three weeks, we have had the foliocytes of the "sack-worm" (*Thyridopteryx ephemeriformis*) sent to us, and in each par-

ticular case the question has been asked "What is it?" "What shall we do to get rid of it?" "What is its history?" etc. "One thing we know about it, and that is, it defoliates our trees and shrubbery, and especially our arborvitae." Just so, and that is enough to know about it to suggest its unqualified destruction. There is not a more accessible and easier vanquishable insect enemy than the sack-worm, if it is approached at the proper season, and that season is from now on to the leafing of the trees and shrubs in the spring. Many of the foliocytes now standing from the twigs and branches contain nothing—they are the empty habitations of the males of last season, and vegetation would sustain no farther injury by letting them remain. But, unfortunately for the careless or indifferent husbandman, many of these spindle shaped foliocytes are but the nests of the last years females, and shelter the *possibilities* of from one to three hundred young sack-worms, that will, if permitted, make their appearance about the twenty-fifth of May next. This insect has a considerable geographical range in the United States, and its history and habits have been more thoroughly "ventilated," perhaps, than any other of the noxious kinds; and it is, therefore, rather astonishing that the question should still be asked, "What is it?" and that too by those who are neither ignorant nor illiterate.

Let us admonish all who are interested in arboriculture and horticulture—whether they know its history and development or not, or whether they *ever* know it—that in one thing they cannot go far wrong, and that is, its unqualified destruction, whenever, or wherever they may encounter it; but, there is no better opportunity presented for its destruction than the winter or early spring season, before trees and shrubbery put forth their foliage; for then these foliocytes become conspicuously visible on the naked branches, except in the case of evergreens.

Our attention was first called to this insect in the summer of 1849, by a gentleman then residing in the city of Lancaster. He had for a year or two previously noticed something wrong with the foliage of a fine apricot tree that stood near his dwelling in a back yard. The leaves were brown and crisp, and hung in small bunches, which did not fall in autumn and winter, as in other trees, and each returning summer showed a rapidly increasing number of them. After observing these bunches of dry leaves for a short time, we found they moved slowly from place to place, and occasionally would let themselves down by a fine silken cord, and then draw themselves up again. About the same time we observed that a Linden tree near the side of the house was similarly infested, only more numerously, and as some of the infested branches hung close to a third story window, we took possession of the window and there studied the animals for two or three years, before we were enabled witness all the phases of their development. We published our observations on it in the *Pennsylvania Farm Journal*, then published in West Chester, Pa., and named it *Olethia pennsylvanica*. This was we think in 1851 or 1852. Our observations had been long previously in manuscript;

and, about the time they were running through the press, Dr. Harris contributed a paper on the subject to a journal published, we think, at Rochester, New York. He named it *Oiketicus confucianus*, because the specimens sent to him were found on cone-bearing trees. We had found it on the apricot, the linden, the apple, the plum, the cherry, the locust and a number of other trees, before we observed it on the *arbor vite*, for which, however, it seems to have a partiality. Subsequently it was discovered that Dr. Walker had previously described it under the long "jaw-breaking" name it now bears. It seems unfortunate that such a long and almost unpronounceable name should be bestowed upon such a very common insect, because the public will never familiarize themselves with it under that name.

But this is only one case; there are numbers of other worms, or the eggs that produce them, that need attention between now and spring.

THE RABBIT BOT.

"In the throat of a rabbit sold in Louisville, the other day, was found a worm nearly an inch long and thicker than a tobacco worm. This intruder was nearly black, wore ridges, and was apparently dead. The rabbit seemed perfectly healthy, and there were no signs that the worm had injured it. Perhaps the rabbit was an early rabbit."

The foregoing paragraph may have been copied into half a dozen newspapers before it reached the columns of a local daily, nevertheless there is nothing at all wonderful in it—indeed it is a very common occurrence in regard to rabbits during the summer season. In our boyhood there was hardly a boy—who knew anything about rabbits at all—who did not know that rabbits were "wormy" in the summer. For that reason a sensible boy would not hunt or kill rabbits in summer—they were "no good," they were wormy. But the object found in the "throat" of the rabbit at Louisville was not a worm, hence its dark color, and the "wore ridges," whatever those words may mean. It was the pupa of a certain large species of fly, allied to the genus *Caterbra*, the larva of which live beneath the skin of various animals. One species, the *Caterbra cæscularis*, passes its larva period in the serotum of the gray squirrel. Some years ago Mr. Geo. Hensel, of Lancaster city, had a "ground squirrel" (*Tamias striatus*), which was infested with these subcutaneous bots, and towards the end of the summer three large whitish worms issued forth from the groin of the squirrel and burrowed into the ground, and in due season the flies evolved, which were pronounced by Osten Sacken (Russian Secretary of Legation) to be *Caterbra botata*.

A notion obtained among old squirrel hunters, from our earliest recollection, that the red squirrel was guilty of emasculating the gray squirrel. Science has, however, demonstrated that the act of emasculation, when it occurs at all, is performed by the "squirrel bot." The horse bot is the *Gastrophilus equi*. The "Gad fly" (*Hypoderma bovis*) infests cattle, and the *Estrus vis* the sheep. Even the reindeer is infested by a bot (*Hypoderma tarandis*). The species that infests the rabbit belongs to the genus *Estro-*

myia, and they all belong to the family *ESTRIDÆ*, commonly called "Bot-flies," "Gad-flies," "Breeze-flies," &c. In rabbits the worms are usually found back of the ears, in the neck, or the back, and they are so very large that it is a wonder such small animals as rabbits and squirrels can survive them. In the above quoted case doubtless the worm was obstructed in its egress from the body of the rabbit, and pupation took place there instead of under ground. It *may* have been dead, but it does not really follow that it was dead merely because it "appeared so." One case came under our observation in which the worm did not burrow into the ground at all, but pupated above ground. But this was abnormal; they usually pupate under ground and come forth a fly, ready to deposit its egg or eggs on a new victim in the spring.

THE ACQUISITION OF KNOWLEDGE

"*Knowledge is power.*" This saying is trite and popular, and withal, true; but do people generally reflect how very slowly, and through what devious avenues real knowledge is acquired, and the quality of the power it confers? Abundant illustration is furnished every day of the exceeding feebleness of those who are entirely ignorant upon subjects that are as familiar to others, as the A, B, C of the expert schoolboy. We do not allude to professional, mechanical, scientific or theological knowledge, in which one may be an expert within the line of his specialty, and yet be as obtuse as an unlettered pagan outside of that specialty—and reasonably so, because it cannot be expected that "one small head" could possibly hold all that is worth knowing upon all subjects. In any event, therefore, knowledge is power, so far as it goes in any direction, and in any behalf, and especially so when it is *thorough* knowledge. But do we consider rationally, liberally and sympathetically the slow and gradual progress that is made in the acquisition of knowledge?

See the "whining school-boy," with what trial, trouble and vexation he acquires a recognition of his A, B, C's—their sounds, their forms, their import, and their relations to syllables, to words, and to sentences. Of course some become familiar with those subjects in a much shorter time than others.

It not infrequently requires a whole year for an urchin to familiarize himself with the names, the powers, and the import of the alphabet alone. It seems to the parent a very small amount of learning for the great amount of money that has been expended to effect such a small and dubious result. The boy spends ten long years—from six to sixteen—at school, and the outlay for tuition, books, slates, boarding and clothing, besides a score of *electras*, seems enormous, when compared with a mere High School card of graduation. It is conceded that *some* progress has been made, be it "more or less," but then, after all, it is only "the beginning of the end" of knowledge; and the youth himself, in the very first practical step in life he attempts to take may painfully realize that he knows nothing. Not that he really is altogether ignorant, but that he becomes sensible of a vast difference between theory and practice. He feels that the goal of knowledge is farther on in the race of life, and that to

reach it, will cost more time, patience, labor, vexation and money.

The item of boarding alone at the low average rate of one dollar per week, would in ten years amount to over \$500. Clothing at, say ten dollars a year, would add \$100 more, to which add books, paper, slates, pencils, pens, &c., not less than \$50 or more, and then the boy would be merely on the threshold of knowledge. Five years more at college, at an additional cost of \$100 a year, making in all, including \$50 for contingent expenses, \$1,200, which, doubtless, many people, if they had so much in hand in advance, would rather let their children grow up in ignorance than to purchase a rudimentary education at such an enormous price. But this pecuniary aspect of the question is the smallest factor in it. Without brains, without industry, and without perseverance, the boy may still be an un instructed donkey, a learned fool, or an impractical consumer; and, even if possessed of good common sense, he may have made little progress in useful knowledge. Now all this goes to show that knowledge is not acquired through the means by which a fortune is acquired, but that it is acquired through laborious co-operation with the means that are employed to disseminate it, and that *thorough* knowledge, like the development of a plant or a physical body, is slow and gradual, and not too dear at almost any price. It is the same in the acquisition of any of the natural sciences. They have their rudimentary, or A, B, C, state, their a-b-a-b state, and a thorough knowledge of these comes, "here a little and there a little; line upon line, and precept upon precept," and at every step seems to "cost more than it comes to;" but this is only an *appearance*, and a fallacious appearance too. When a seed is put into the ground, does any one reflect upon the immense labor, time and expense the development of that seed will cost before it is produced again through the energy and development of the plant. And yet nature is never discouraged, never shocked at the immense expense, but goes on slowly and silently re-producing, as if the energy, labor and expense were a matter of course, which it surely is. What makes a pound of iron, which may be procured for *twenty cents*, yield a product the value of which may be eventually worth *two hundred and twenty dollars*? What but the labor and expense; because every hour of productive labor costs vitality, physical energy, time and patience, as well as pecuniary outlay.

Let any man, totally ignorant of the games of billiards, backgammon or chess, stand from morning till night, and be a mere "looker on" of these games, and very likely he will be as ignorant of them in the evening as he was in the morning, and that may not be all of it, he may also come to the conclusion that those engaged in these games may know as little about them as he does for all that he can see to the contrary. But, let him essay a hand along with others who understand these games, and he will soon learn *something*, if he has any brains at all; if nothing else, he may be made conscious of his blunders; and every blunder apprehended and corrected is a step forward in the acquisition of knowledge.

It is the same in any of the specialties in human knowledge. By energy and perseverance one may attain to a position in which he is almost certain to be underrated or overrated by those who are altogether ignorant of those specialties. A man often attains distinction, not because he knows so much, as because his judges may know so little. Real knowledge does not come suddenly, simply because it is more experimental than theoretical. A knowledge how to swim, is worth a thousand essays on swimming, when a practical test of swimming is required.

An ornithologist may be voted an ignoramus because he cannot tell the name of a bird that is in "the habit of sitting upon the top-rail of a fence and jerking up its tail," without being informed of its size, color, and outward contour. The spirit of these excursions is, that experimental knowledge is acquired slowly, more or less laboriously, and to all extensively; and the man who labors therein is worthy of adequate compensation; but, because one cannot "box the compass" in human knowledge, it does not follow that he therefore knows nothing.

If the farmer would condescend to look back to the periods of Xenophon and Pliny and Columella, and scores of others strewn along the interval between their days and ours, he would discover how very slowly progressive agricultural knowledge has been developed in the world, and what an immense sum it has cost. And, peradventure, he might be impressed with the conviction, that nothing is, or ever has been accomplished without expense, either mental, physical or pecuniary—and perhaps never will be.

AN ENTOMOLOGICAL PHENOMENON.

During a thaw about the income of the present month (January 1884), Mr. F. A. Beates, near Willow Street, Lancaster county, found a large number of a "pecentiar worm" running very nimbly over the snow; and although the snow had melted considerably the day previous, yet on the morning when he first discovered the worms, the ground was still covered with a shallow crisp sheet of it; and as the field in which he found them contains wheat, he felt some misapprehensions in regard to them, for they were so numerous that they attracted a behemged colony of crows in the neighborhood, which gobbled them up as precious morsels. These worms are fully one inch in length in their present expanded condition; of a dull whitish color; the head, the dorsal portion of the thoracic and abdominal segments, and the caudal appendages are shining brown in color. Indeed the sutures are so much expanded that each segment presents a transverse subquadrate spot, or scale. Underneath each segment there are brownish shiny spots of different sizes. The antenna are four-jointed, the mandibles toothed on the inner margin, and the caudal appendages alluded to, consist of a *proleg* beneath and two slightly bristled filaments above, on the whole, there is no doubt in my mind that it is the *larva* of a species of CARABIDÆ, a family of predacious "ground Beetles." Indeed, on turning to page 59 of Prof. Riley's 1st Report on the noxious and innocuous insects of Missouri, I find he has this very *larva* described and illustrated; and that too, in the

act of capturing and devouring the larva of the cutworm; and he refers it to the genus *Harpalus*. As *Harpalus pensylvanicus* is very abundant in Lancaster county, and especially in the southern portion of it, it is, very probably that species. My first impression was that it belonged to the *Elaeteridæ* or *Lampyridæ*—"Click Beetle," or "Firefly"—but, out of the alcohol and under a magnifier, soon revealed its character, and I can assure Mr. B. that he need have no anxieties about this insect depredating upon his wheat. The only thing to be regretted now is that the crows destroyed so many of them, for their absence next summer may allow the multiplication of some noxious species upon which they feed. Even had they proved the larvæ of fireflies, there would have been nothing to be alarmed at, for these too are carnivorous in their habits.

Although many of the "Click Beetles" are wood borers, yet some of them—popularly called "wire worms"—are sometimes destructive to wheat, corn and tobacco.

The most remarkable phase of the subject is that these insect larvæ should be found running about upon the snow. At no time since the ground has been covered with snow (some days before Christmas), has the temperature been sufficiently genial to tempt insects to come abroad,—except it might be "snow fleas"—and yet, according to the observations of Mr. Beates, there were hundreds, perhaps thousands of them at a season of the year, and under circumstances which usually produce torpidity in the insect world.

On Saturday the 12th inst., Mr. A. H. Summy of Oregon, Lancaster county, brought me some snow fleas and reported that millions of them were on that day scattered over the snow for miles in his neighborhood.

Possibly during a temporary elevation of the temperature these *Harpalidæ* larvæ may have been forced abroad in search of food, and it would have been interesting to know whether any snow fleas were abroad in the same locality. They might have been very easily overlooked, especially when a larger and more formidable insect was present; and one too of whose habits Mr. B. was suspicious, and to which his attention was wholly directed.

It is a great pity that farmers in general do not take sufficient interest in entomology to learn to distinguish between noxious and innocuous insects; it would be a great help to them in solving the problem of insect depredations.

INTENSE COLD.

The following, clipped from the columns of a local journal, so far as it goes, eclipses the experiences of the "oldest inhabitant." It is always so, during "snaps" of intense cold or heat, until some old literary roofer exclaims something "to the contrary notwithstanding."

"Saturday night and Sunday morning, January 5th and 6th, 1884, were the coldest felt throughout the West and South for many years. Temperatures were reported of 27 degrees below zero at Chicago; 32 below at Dubuque; 24 below at Des Moines, Kansas City, and Indianapolis; 48 below at Jamestown, Dakota; 39 below at Bismarck, Dakota; 20 below at St. Paul, Minnesota; 20 below at

Louisville, Kentucky; 23 below at St. Louis; 14 below at Cleveland, Ohio; 20 below at Cincinnati, and 5 below at Pittsburg. The effect of the cold in Chicago and other Western cities was to continue the paralysis of business caused by the setting in of the frigid spell. In Chicago several plate glass windows were cracked by the frost, and near St. Louis a number of mules, in transit by rail from Texas, perished in the cars. The cold wave extended to the Gulf, the temperature at Mobile on Saturday night being 20 above zero. Many orange trees were killed, and it is believed the whole crop of spring cabbages in Mobile county, numbering nearly 4,000,000 head, and valued at five hundred thousand dollars, is lost.

The temperature in the Northwest and West was rising on Sunday, and in the evening the thermometrical records were as follows: Fort Garry, Manitoba, 18 below zero; Bismarck, Dakota, 12 below; Morhead, Minn. 10 below; Cleveland, Ohio, 3 above; Cincinnati, 5 above; Eastport, Me., 1 above; Boston, 14 above.

The maximum cold of the season was reached on Sunday morning in portions of New England. The weather at Vergennes, Vermont, was the coldest experienced in ten years, registering 36 degrees below zero; at West Randolph it registered 33 degrees below; Brattleboro, 20 to 25 below; White River Junction, 25 below; at Johnsbury, 40 below; Barre, 42 below; Woodstock, New Hampshire, 36 below; Hanover, New Hampshire, 28 to 35 below. At Charleston, South Carolina, at 4 o'clock on Sunday morning it was 13 above zero, the coldest weather recorded there in 135 years. At Petersburg, Virginia, on Saturday night it was 5 below.

EXCERPTS.

THE NEW YORK *World* is authority for the statement that the plantain, if not permitted to go to seed for two years, will die out. Mow previous to seed time two years in succession.

In several States there are local and rural agents of societies for the prevention of cruelty to animals. Farmers who are cruel to their animals should be complained of. Sometimes farmers are arrested on the street for driving sick horses but whoever heard of a farmer being complained of for ill-treating his dog or cat? In the streets of New York the society's agents look at passing horses in the thickest crowds, and take a sick or galled one out of the shafts and compel the driver to care for it. The agents have the same power by law, that is possessed by a policeman.

ONE of the most promising trees for forest culture, where the conditions favor, is the American chestnut. It grows spontaneously from New Hampshire to Alabama, and from the eastern slope of the Alleghenies to the Western prairies. Not only is the tree valuable for its nuts, the production of which begins in a very few years from planting, but the timber is very valuable for fencing; it is admirable for horse-fishing, the color and grain of the wood being very attractive.—*Chicago Inter-Ocean*.

As long as this country is compelled to import annually large quantities of eggs, there need be no fear that raising poultry will not prove profitable.—*Chicago Tribune*.

CELERY is good for headache and is an excellent brain food.—*Chicago Tribune*.

An extra mat, an old one, should be placed in the hallway on a rainy day.

AN exact number of acres of every field should be known to the owner.

E. L. STURTEVANT says the great drawback to obtaining satisfactory yields of corn comes from slovenly culture, not only in operation in the field, but from careless planting by the farmer.—*Troy Times*.

THE supposition that the introduction of farm machinery would cause a displacement of farm laborers has not been borne out by facts, as at no period has there been a greater demand for human labor than at the present. Farm hands are always scarce in some sections.—*Prairie Farmer*.

Farm and Garden says an acre will produce five or six times the amount of strawberries it will wheat.

APPETIZING dressing for fowls is made of mashed potatoes, well seasoned; for ducks or for wild game a flavor of onions is desirable; herbs also may be added.—*N. Y. Post*.

BREED up the cows; bring them up to as near perfection as possible. Weed out the unprofitable, though you give them away and set your standard at not less than a day per cow for at least eight months in the year.—*Chicago Journal*.

CRANBERRY pudding is made by pouring boiling water on a pint of dried bread crumbs; melt a tablespoonful of butter and stir in. When the bread is softened add two eggs, beat thoroughly with the bread. Then put in a pint of the stewed fruit and sweeten to your taste. Bake in a hot oven for half an hour. Fresh fruit may be used in place of the cranberries. Slices of peaches put in layers make a delicious variation.—*Boston Post*.

Cows which are to give milk through the winter, says the *American Agriculturist*, need to be fed with special care. If possible, the flow of milk must not be permitted to decrease. Mangels and sugar beets are excellent cut in slices and sprinkled with bran. The rule that good feeding brings good manure, should be kept in mind in a judicious care of farm animals during winter. Good feed in abundance is not enough; it should be given with regularity.

HOME-MADE oatmeal crackers are so nice, and it is really so little trouble to make them, that almost any mother or cook, can get time to try this rule: Wet one pint of fine oatmeal with one gill of water; after mixing as well as you can take it out of the dish on the kneading board, on which you have scattered plenty of the dry meal; roll out and cut in squares with a sharp knife. The crackers should be rolled very thin; these should be baked in a slow oven, and after you are sure they are done leave the oven door open to allow them to dry. Salt should not be omitted.—*N. Y. Post*.

To remove specks of dirt from the eye, immerse it in cold water, then roll and wink it rapidly, still keeping it in the water till the desired result is accomplished. In cases of slight inflammation or dryness of the eye, this bath has a good effect. Use tepid, slightly salted water, instead of cold.—*The Household*.

COTTON-SEED oil is largely used for adulterating butter and cheese.

THE finest peaches in Centre county came from the College Superintendent's farm.

THE Crown is the largest land owner in Russia, possessing more than one-half of the entire empire.

FRUIT men all say the best way to treat trees infested with borers is to remove the earth about the base of the trunk. Fill up the hollow after freezing weather is well under way.

THE hogs in the West are growing slowly, cause, soft corn. The early frost made a short crop and imperfectly ripened grain, and this means blue beef and skeleton poultry, as well as light pork of inferior quality.

SIXTY THOUSAND of the Swiss people are engaged in the silk industry, most of them in their own houses. Zurich alone has 3000 power looms and 53,000 looms, all told. The silk production of the country reaches \$17,000,000, of which something less than one-third comes to this country, and pays an ad-valorem duty of 50 per cent.

AN Indiana farmer who raises many turnips harvests them late and stores in trenches. The trenches are two feet deep, about a foot and a half wide, and of any desired length. He puts the turnips in, filling the trenches about half way to the top, then puts on a light covering of soil. As the weather becomes more severe he adds more covering until the trench is full.—*Chicago Tribune*.

In many localities, where the potato bug has been very destructive, it has done little or no damage the past year. This may be partly owing to the peculiarities of the season, but is probably also in part to the increase of insects which prey upon the potato beetle and its larvae in various stages.—*Chicago Times*.

THE CURCULO SMOKED OUT AT LAST.—Some time since, we announced that the Kentucky Horticultural Society had offered a premium of five hundred dollars for a cheap, and effectual remedy against the curculio. Several have already been proposed, of which the following published in the *Louisville Journal*, has the merit of cheapness and simplicity at least, and is said to be effectual. Here it is, with the proposer's specification:

I take an old tin pan that is worn out or unfit for other use, put some coal from the fire into it, and lay on strong tobacco and smoke the tree and young plums well. One nail through the bottom of the pan into the end of a stick or pole five or six feet in length is sufficient, so that it can be raised handily and carried about the tree through the branches. Care must be taken not to have a blaze. This should be repeated about once a week for three weeks, after the plum is formed from the blossom.

THOS. T. GLENN,
Niles, Berrien county, Mich.

A WRITER in the *Country Gentleman* recommends the soaking of the wood composing a summer house in crude petroleum, saying it will make any common wood nearly or about as durable as cedar, imparting to it a rich brown color. It would be an excellent idea to apply the same preservative to trellises, etc., on lawns.

HENRY STEWART notes in the *New York Times* the fact that some varieties of potatoes seem to be more distasteful to Colorado beetles than others, and instances Wall's Orange and the Dakota Red as two sorts which with him required no attention, while others grown near were given daily pickings.

THERE is a vast difference in the flavor of eggs. Hens fed on clean, grain and kept on a clean grass run give much finer flavored eggs than those that have access to stable and manure heaps, and eat all kinds of filthy food. Hens feeding on the oily species of fish and onions flavor their eggs accordingly, the same as cows eating onions or cabbage or drinking offensive water impart a bad taste to milk and butter.—*Chicago Herald*.

THE Jefferson county *Union* thinks that farmers must meet the hog-butter trouble by learning how to make better butter from cream.

COL. RICHARD PETERS thinks that stock farming pays in Georgia. This year he has sold \$100 worth of butter, \$4000 worth of Angora kids, \$800 worth of yearling Jersey bulls, \$550 worth of Essex pigs, \$1500 worth of wheat, besides an unsold increase of flocks and herds amounting to at least \$5000. His farm grows richer year by year, and the basis of its improvement is clover ploughed under, roots and tops.

THE crop report for November places the yield of buckwheat at 11.7 bushels per acre in New York, and 11 bushels per acre in Pennsylvania, the two States which produce two-thirds of the country's crop. In the West this crop is grown in a small way only. Maine produces twice as much as Illinois, in the South it is not grown at all. About 11,000,000 bushels will be the product for the year. It would have been 13,000,000 but for the September frost, which caught the late sown grain.

THE making of cider is one of the important industries of France. There are now in that country more than 4,000,000 cider apple trees, which, if planted side by side, would line a Boulevard 15,000 miles long. The average annual product is more than 220,000,000 gallons. The best cider is made in Normandy. It is dark brown in hue, and is mixed with water for drinking or bottling. The second best quality is made in Brittany. It is of a bright amber color, and is also esteemed too strong to be drunk "straight."

THE rinderpest, or cattle plague, which is prevalent in Southeastern Russia, has appeared in Silesia. It has leaped across the European Continent, following the course of the plague of seventeen years ago. It is now within three days' journey of Hull and the Northeastern ports. Assuming that this rinderpest is identical in subtlety and malignancy with that of 1-66, when inflicted a colossal loss on the agriculturists of England—in Cheshire alone it was about £1,000,000—it is the obvious duty of the Crown authorities to instantly adopt the extreme precautions to prevent the introduction of it into the ports of Great Britain.

If there has been colder weather for a long series of years in the Western country than that of Friday and Saturday the united mem-

ories of all the oldest inhabitants fail to recall the time. We are told from one point in Dakota Territory that the mercury was down to forty-eight below zero. This is eighty degrees below the freezing point, a degree of cold seldom found below the Arctic circles. That was the severest temperature reported; but the mercury was very low down throughout Minnesota, Iowa, Kansas, Western Missouri, Wisconsin, Illinois, Indiana and Ohio. From as far eastward as Cincinnati the report came of twenty degrees below zero, which is fifty-two below the freezing point. We got a breeze from off this Arctic wave, but it was only a whiff compared with the Western article.

GIVE OR TAKE—A FABLE.

A bull and an ass one day,
By chance met in a narrow way,
Where each against the rock must squeeze,
If they would pass along with ease.
The bull, though of an iron will,
With deferential air, stood still,
And said, "Now half of the road is thine,
And half the space by right is mine;
So let us choose the friendly plan,
And move along as best we can."
"Not so," said the stubborn ass replied,
"Who blinded by his foolish pride,
Mistook the traveler's civil air
For evidence of craven fear:
"The right of way is mine alone,
And you must back, while I move on;
Or else I'll stand here, as you see,
Till you shall starve or yield to me."

Now, angered at conceit so great,
The bull at once cut short debate,
And howling low his massive head,
He tossed the braying quadruped
So far upon his airy road,
A spreading oak received the load.
The ass found all his efforts vain
To disengage himself again;
And there he would be hanging still,
A mark for crow or raven bill,
But then there chanced, from miles away,
Some kindly market-boys, that day,
To be just where, up in tree,
The foolish animal they could but see.
They got him down; and thusly did advise:
"It's never best to be more wise than wise.
The right of way is never yours alone;
Yield always unto others that which is their own."
—*Iulce and Jovialis.*

CONTRIBUTIONS.

BROOKVILLE, O., Jan. 15, 1884.
EDITOR LANCASTER FARMER.—Sir: In the matter of the *Fungi*, which annoy the farmers, Mr. Linnville, did well to invite the attention of them to the origin of smut. The study of cryptogomous plants, is of immense importance to the farmer. There is no species of plants, but what is liable to be the pabulum of some one variety of these minute plants. The study of mycology should be introduced into every school, where boys are taught with the view of their being farmers. It is one of the most recouidite of sciences: more than 150 varieties of smut have been enumerated, and many varieties have not yet been noted. Moulds, mildews, rusts, brooms, toadstools, rusts, smuts, and bunts belong to the cryptogomous family of plants. Stale bread, and old cheese, and old leather in damp weather, are sometimes covered with

these moulds. Rusts and smut of cereals belong to this family. Different parts of the same plants are affected by different varieties of rusts. The stems of the cereals have one kind and the leaves another. Potatoes in the ground are liable to be affected by varieties of moulds—in fact, all the field and garden crops are liable to be, more or less, rusty from this cause in damp weather. I have never heard of their being any smutty wheat in this country. I therefore have had no opportunity to study the natural history of this parasite, but I think, it is exceedingly doubtful whether wheat becomes smutty from smutty seed; however, there is one variety of this parasite, whose spores are taken up into the plant in the water absorbed by the roots. If it is true as some writers on this subject aver that the spores of some varieties, insinuate themselves into hard wood and other hard substances, then we might understand how the smut spores could penetrate the chaff surrounding the wheat grain, and make a lodgment on the grain.—*C. Gish.*

ESSAYS.

*THE BEST METHOD OF WINTERING HORNED STOCK.

The farmer whose stock will come out best next spring has made preparation months past to that effect; he has prepared himself with an abundance of first quality hay, and will, or has, put up his fodder in the best condition.

Being prepared thus far, it is very important that the change from green to dry feed should not be sudden, but, as autumn approaches, stock should be fed mixed feed, i. e., green and dry, and if some succulent food, such as roots, or possibly ensilage, be secured for winter, all the better. In the absence of green food, the next best thing is to scald or soak a fair proportion of the food, so that stock will have no occasion to drink too great an amount of cold water, which in cold weather will chill any animal. Where stock is watered from a well or spring near the stable and well sheltered from cold blasts, the above precaution is not so important, but still I consider it preferable to too much drinking; but where stock has to go or be driven a distance to drink, and from frozen streams or ponds at that, it is of vital importance that as large a proportion of water should be taken with the food as is consistent with feeding.

Careful Attention.

In these days of sharp competition in stock raising as well as in other business, it is important that it should be conducted with as much economy as possible.

Any animal that will require the summer to recover the flesh it lost during winter, does not pay its owner for its keeping, yet many animals may be seen every spring that will correspond with said picture, and many more nearly so. The most economical method of raising horned, or any other stock, is to keep them in good growing condition from birth to maturity, and from thence in a good normal condition during winter as well as summer.

For such whose stock is generally afflicted with hollow horn, or wolf in the tail, the following is not only a remedy, but an infallible preventive: Feed regularly with proper

—Read before the Lancaster County Agricultural and Horticultural Society, Jan. 7th, 1884, by H. M. Engle.

food, and once a day take what is left in the manger and rub it over the back of the animal. A very small amount of such surplus feed is even better than too much. A hint to the wise is sufficient.

Feed Heat Producing Food.

For winter a much larger proportion of carbonaceous food is required than during summer, and in this section of country we grow nothing that will answer the purpose equal to corn, which is not itself a perfect food, except for fattening, but with a proper proportion of bran, shorts or linseed meal and hay and corn fodder, proper rations may be prepared and such changes made as will keep up a regular appetite without a surfeit. The intelligent feeder will know how to proportion rations so as to produce the desired results, whether for milk, butter, fattening, or simply a good healthy growth. Feeding at proper and regular hours is an important matter. Good warm stabling with proper ventilation is another, and it must not be forgotten that lumber is cheaper than corn, even at present prices, for the purpose of retaining animal heat. Grooming pays as well on cattle as on horses. A sufficiency of bedding should always be given.

Value of Sunshine.

During warm or moderate days stock may be out the greater part of the day, but as the cold increases the time for out doors must be shortened to a period simply long enough to water and for bedding. Instead of the prevailing custom of cleaning the stables once a week it should be done once a day, and to keep stock clean as it should be the droppings must be removed at least twice a day.

The large proportion of stock, including milk cows, otherwise well fed and cared for, coming out of winter quarters annually with dung on them from hoof to hip, presents a very unsightly appearance, besides questioning the cleanliness of the dairy products during such period. Kind treatment adds largely to the comfort and thrift of animals.

Although self-interest should prompt owners of stock to treat such humanely, the reverse is in too many cases the rule, for instead of providing comfortable winter quarters, their animals are exposed to snow and storms with only the warm side of a fence or a straw stack for protection, or, if housed, the stabling is in many cases so open and filthy as to be unworthy the name of stable.

The latter extreme does happily not hold good as a rule in our county, where farmers generally have good and comfortable quarters for their stock; at the same time they are too many cases (if not in our county) at least in our State and country at large, that a strict application of the law for the prevention of cruelty to animals would find more guilty than should be found in this enlightened age. We should at least all be law-abiding citizens, but I seriously question any person's religion who does not treat his animals at least humanely, and I have no doubt but that missionaries could find a wide field for operations on this subject.

—OUR late issue of the FARMER this month was owing to uncontrollable contingencies.

THE BEST METHOD OF WINTERING HORNED CATTLE.*

As the term in this latitude during which cattle must be fed on dry rations, lasts from five to six months, it is a matter of great importance to know how our stock can be best and most economically wintered.

The first requisite is good and sufficient food, and next shelter. As our winters are cold it requires a large amount of food to keep up the animal heat even when the stock is warmly stabled. Feed rich in carbohydrates is the proper thing to sustain intense combustion and also to fatten the animal. Corn is such a feed and fortunately is raised here in as great perfection as in any part of the world. The animal's nervous and muscular and bony structure must be maintained also, and to have symmetrical and healthy development must have phosphorus and nitrogen. Bran, shorts, clover, hay and linseed cake contain these elements, and in addition to corn make a perfect ration. Science indicates that a mixture of two parts, by measure, of corn and one part of bran would be a good proportion for fattening cattle, and corn and bran half and half or corn and oats for dairy cows or young growing stock. The experience of practical feeders and stock growers confirms the theories of the chemist.

Animals like a change of feed, too. Corn-fodder and hay may be given alternately, and an occasional feed of potatoes, mangolds or even turnips is much relished. These roots are from ninety to ninety-five per cent. water, and yet the avidity with which cattle eat them in winter would indicate that they are useful for a change, and probably assist in the digestion and assimilation of dry feed. Of course all animals should have water at least once a day.

As regards the value of ensilage for stock I have not had any practical experience, but am inclined to think it will be a means of keeping a large number of animals through the winter months. Any one who has been watching the discussion of the ensilage question in the agricultural papers cannot help but see that the advocates of the system are invariably those who are using it and can speak authoritatively and the opponents are almost invariably mere theorists. Chemists who are reiterating their assertions that well cured hay contains the same elements as grass *minus* the water, ought to know that cows fed on grass only will make a much larger quantity of butter and of better quality than the same cows fed on hay only. Every farmer knows that cows changed from dry feed to grass immediately increase the production of milk and butter and vice versa. I cannot see why properly preserved green feed may not produce the same result.

Most of the cattle feeders in this county give their steers a ration of meal at noon, but I have not known dairymen to feed meal to their cows more than twice per day. It is all important that animals should be fed at stated times. When the time comes they are restless until fed and consequently do not thrive. All the best feeders with which I am acquainted curry their steers daily, and the animals enjoy it greatly and, I have no doubt,

thrive better for it. Repeated experiments, however, at an eastern station would seem to show that fattening cattle lay on the fat faster without currying.

It is best on mild days to let stock of all kinds have at least an hour or two to sun themselves. Sunshine is as essential to animals as to plants. I have not mentioned the old English system of "pit feeding." I think it has never found favor in this country. A pit is dug large enough to permit the animal to turn around and no more. The steer to be fattened is then lowered into it. Bedding is thrown in every day, and feed and water lowered as often as necessary. The depth of the pit and the daily allowance of bedding are so proportioned that when the animal is fat the pit is full of manure of the best quality. In this way the beast is kept in perfect quiet and is said to increase in weight very rapidly. I would not advise any one to attempt this mode of feeding here, lest he should be reported to the society for the prevention of cruelty to animals.

SELECTIONS.

REPORT OF COMMITTEE ON FRUIT CULTURE.¹

Fruit culture, in its broadest sense, embraces so many topics that it is impossible even to refer to them all, in a short report. Its importance to the human family, however, is scarcely second to any other of earth's productions.

From a pecuniary standpoint the real value of fruits embraces millions of dollars—from a health standpoint their value can hardly be estimated, and from their general beauty it is evident that the Creator intended that man by nature should be attracted by them. There is scarcely a healthy child that will not as naturally take and eat fruit as a duck will take to the water, and if custom and habit would not make man abnormal, fruits would constitute the larger proportion of his diet.

Assuming the foregoing as facts, is there not a wide field for the display of our energies from both pecuniary and philanthropic standpoints?

Since we of the east can no longer successfully compete with those of the west in grain-growing, stock-raising, or dairying, why not embark more extensively in horticulture?

Since fruits and vegetables are more perishable than the general farm products, they almost invariably, in fresh and good condition, find a ready market at remunerative prices at home.

The dependence of our great State upon her neighbors for so large a proportion of horticultural products, is at best humiliating, and more emphatically so, while it has soil, climate, capital, muscle (and we had almost said *brains*) enough to be an exporter instead of an importer of said products.

Why should our State not supply its own cities and towns with berries, grapes, peaches, pears, apples and other products in the same line, when it is evident that it can be done?

As evidence, after such a severe winter as the past, small fruits have done admirably, and need not necessarily be a total failure in

any season. While the peach crop was cut unusually short in the bay States as well as in the Keystone State, yet not a few orchards, properly located and well attended, in our State, bore fine crops at remunerative prices. Grapes were quite a fair crop, pears a full one, and many apple orchards, (although the off year) have fair to abundant crops. At the same time, the unusual heat and drought have caused premature falling and decay.

It is therefore demonstrated that our State has the capacity of being at least *independent*, if it cannot claim a monopoly in horticulture; for the same causes will produce the same effects under the same conditions. For instance, if one strawberry patch will yield a good crop, any other patch with similar soil, location and management, will bring similar results;—the same with peaches, pears, apples, or any other crop.

It must not be forgotten, however, that success in horticulture, like any other occupation, requires judgment, close observation, and attention.

A proper selection of soil and location, and choice varieties of fruit is of first importance; planting must not be done in a slipshod manner; pruning and training properly is not child's play. The common notion and practice of trying to produce full fruit and field crops from the same ground at the same time, for a succession of years, without replenishing the soil, is simply ridiculous.

Neither must the study of entomology be neglected, for there is hardly a tree or crop, whether of fruits, vegetables or cereals, that is not subject to the ravages of some insect. Diseases of a fungoid nature have also become very destructive to plant life.

The above array of drawbacks seems so formidable, as to discourage many who might otherwise be inclined to engage in horticulture. Thanks, however, to a kind Providence who has, at the same time, given to man the means of counteracting said drawbacks, probably for the good of man, for were he not continually stimulated to exertion, he would lapse into indolence and laziness, from which his mental capacity and highest enjoyment would greatly suffer.

We claim further, that man can, to a certain extent, have control of the seasons; for a well-drained soil, properly located, will suffer less in a wet season than soil of a reverse nature. During a hot and dry season like the present, mulching at the proper time will often secure a crop that would otherwise prove a failure; even frequent stirring the surface of the soil during the drouth is a great benefit to growing crops. Trees which suffer from the effect of cold dry winds, and in many cases die, might be saved by thoroughly saturating the soil as far as their roots extend, before winter sets in.

Therefore, continuous vigilance is the price of success in this as well as in other enterprises.

When we are apprised of the resources of our great State, and the means at our hands to develop them, it seems to us almost criminal neglect to permit them to lie dormant, especially when we see some of our sister States, with horticultural resources not superior to ours, pocketing tens of thousands of dollars annually from us, for fruits and vege-

*Read before the Lancaster County Agricultural and Horticultural Society, January 7, 1884, by John C. Linville.

¹Read at the annual meeting, 1882, of State Board of Agriculture.

tables, which we might as well pocket ourselves.

The foreign demand for winter apples has increased amazingly since the late war, the exports amounting to many thousands of dollars annually, and the demand (both home and foreign) for fruits evaporated by the newer processes has increased even in greater ratio. There are in our State large areas of waste lands, besides thousands of acres which scarcely pay for cultivation, that may be made remunerative to their owners by judicious planting of fruits, and their proper management.

Persons wishing to plant fruits should observe closely what kinds and varieties succeed well in their own vicinity, and on similar soils, and plant only such in quantity. At the same time other popular kinds should be planted, a few each for testing. By following such a course, no one will go far amiss in his selections. The new and improved fruits which are continually being brought out for dissemination, should, indeed, stimulate to more extensive planting.

To grow fruits for profit their successful production is not all that is required, for some seasons a large proportion is left to go to waste, therefore their proper utilization is of vital importance.

The improvements in fruit-preserving houses, improved methods of evaporating, converting into jelly, canning, besides other methods to utilize fruits, should certainly stimulate to more extensive enterprises to plant for profit. But, suppose one has an orchard bearing an undue proportion of early summer or early fall apples, how can he best secure the most profit from a crop now almost valueless from the lack of a good market? Why, let him avail himself of the present greatly improved methods of evaporating as used in the best evaporating establishments. Or, if he prefers winter apples, he can, by careful after-attention, have, in less than five years, his summer trees bearing winter apples.

Should this State Board of Agriculture be instrumental in the consummation of the above ideal in the near future, and the balance of the fruit trade turn in favor of our State, instead of against it, your committee will feel fully compensated for its exertions.

H. M. ENGLE,
DAVID WILSON,
J. S. KELLER,
F. R. MILLER,
J. A. HERR.

KING TOBACCO.

Our tobacco-growers are at this time considerably "exercised" upon a subject practically involving the questions of *protection and free-trade*. The following compiled for the *Lancaster Farmer* illustrates that after all, things may be more hopeful than they appear if viewed from one point only.

The Sumatra Scare—Farmers Urged to Plant Havana Seed.

The above reports show very plainly a disposition on the part of some of the pretended trade authorities to "hedge" on the question of the importation of Sumatra. It is seen not to be such a terrible danger as it has been represented. Raisers and home buyers, too, are very much less panicky than heretofore, and

the following from an experienced representative of the tobacco interest here at home expresses a conservative view of the question: "The annual cry of Sumatra is heard among the tobacco men and business is at a standstill. About a year ago when Congress was petitioned and did put on a tariff of seventy-five cents a pound we had expected that it was settled, but it now transpires that somebody sharper than those who had the bill in charge succeeded in making into it the clause which is now creating the trouble. We can see little in the hope that Secretary Folger will or can reverse his decision; he seems to just take the law as it is, no more no less.

"As to what Congress can or will do there is faint hope, and even if there is anything done it will be far time in the future, by which time the market can be filled with Sumatra.

"The sending of committees and petitions to Congress, the holdings of meetings by growers and all such measures may be all well enough, but we must take into consideration the very small number of members of either body of Congress who directly represent tobacco growing districts; and it is a hard matter to get those who are in no manner interested, to see it in the same light that we do.

"Those from this, Chester and York counties, in this State, possibly do; Senator Cameron does. Are there any more in the State? So it is in New York, Ohio, Connecticut and Missouri; and these five States are all that are really interested in the matter. The tobacco growers south do not grow seed leaf; consequently they are not afraid of Sumatra. So that it can be seen at a glance that it is up hill business with a few members to get an early hearing.

"It strikes us that to any intelligent grower the view to be taken is this, that we must grow what is wanted and what the manufacturer *must have*. Is there any probability that Sumatra would scare our farmers now if we had raised Havana seed last year? Have any of our farmers who did grow it last year regretted it? Is there a crop of any size in this county that has not been sold and at a good price?

"One thing has already been demonstrated, and that is that it can be grown here better than any other section, both as to quality and size. Besides this it takes less care and can be grown on poorer ground than seed leaf. It is true the yield may not be as large to the acre, but the difference in price will more than make up the loss in yield, and it will always find buyers.

"The Wisconsin and New York growers have made it a success, and it is a well known fact that the large crop of it in Wisconsin in '81 had a very bad effect on this market that year.

"All these things taken into consideration we think Lancaster county should take front rank in the matter as she did in seed leaf, as it is a well established fact she can beat the world raising it."

The Manufacturers' View of It.

Many cigar manufacturers, too, declare that if the Lancaster county raisers will turn their attention to Havana, they need have no fear of Sumatra competition, for the cigar-

makers must have the native product. The cigar manufacturers of New York are for free trade in foreign tobacco and enlarged markets for their goods. They say the use of Havana fillers is a necessity. Seed leaf can't possibly compete with them under any circumstances. Nor can it compete with Havana wrappers. With the duty off of Havana tobacco the markets of the world would be open to American cigar manufacturers. A duty on Havana tobacco instead of protecting American tobacco growers in reality protects Cuban cultivators of the weed. There is no question of the superiority in American methods of manufacturing cigars, and as Havana tobacco is indispensable to a good cigar, if we could obtain it without duty, we could compete with the world."

"But" said the reporter, if we admitted Havana free of duty, we should also have to admit Mexican, Sumatra and all other kinds of foreign tobaccos."

"Very well; suppose they were all admitted, what injury would ensue? The American tobacco farmer might 'kick,' but in the end he would not be injured. Through having foreign tobacco free of duty we would gain a large export business, and just that much more seed leaf would be required. Of course, it is understood that we cannot get along without seed leaf tobacco. As long as cigars are made in this country that will be needed."

"The American growers of tobacco might not object to the admission of Havana, but they certainly would to Sumatra."

"I do not believe any real competition with Sumatra tobacco exists. Whenever American growers of tobacco will properly cultivate their crops they will be preferred to Sumatra. The preference is given to the latter only when the native plant is of too poor an appearance to use for wrappers. Price has nothing to do with it. As a proof of this, look at the readiness of sale with which good Havana seed meets. It is one of the remarkable idiosyncracies of the average American tobacco farmer that notwithstanding good Havana seed tobacco always commands a good price, you cannot induce him to cultivate it to any extent. But whether American tobacco farmers grow Havana seed or common varieties of seed leaf, if they will only give their tobacco proper attention they need have no fear of competition with foreign tobaccos. From a politico economical standpoint I think it bad policy to tax raw material, and this view is being generally entertained by American Statesmen."

The Local Market.

The Lancaster market remains unusually dull, and dealers say it will remain dull until the Sumatra question is satisfactorily arranged. It is thought very little will be done for a month or six weeks. During the past week about 100 cases of '81 were disposed of and 50 or 60 cases of '82 in small lots. No sales of '83 have reached us, but a few lots of Havana seed, previously bought, have been delivered at the warehouses and are reported to be very fine. Dealers are doing all they can to induce farmers to plant this variety of tobacco next season. They say it is exactly suited to our soil and season, and growers who tried it last year will plant much more of it the coming season.

FARM NOTES.

Sprouting Potatoes for Planting.

First class potato growers say that the cutting the potato intended for planting, allowing two eyes to each piece, some two or three weeks before planting, and spreading out upon a dark barn floor or any similar floor, where they will have a chance to sprout from one to two inches, will add to their earliness in maturing some two weeks. They should be moistened two or three times a week moderately, with rather warm water. In planting out they should be covered with not over two inches of soil. If a moderate quality of very early potatoes is desired, the potatoes can be cut as suggested and planted in hot-beds with a very slight covering of soil, and planted out as recommended.

The Red Astrachan Apple.

Although this is a popular variety of the apple, and of rather large size, with the color a brilliant deep crimson, with thick bloom, and is to be found in places nearly all over the republic, yet it is strange that there are so many orchards in which it is not to be found. It is not, it is true, a first-class eating apple, and is perhaps rather acid, but there is scarcely another equal to it for culinary purposes; and no matter what the supply may be in the market, it is quickly bought up. It is as soft and entirely free from pulp when cooked as frozen cream. It is also an early bearer, coming next after the Early Harvest, and though it is not an abundant bearer, it has a yearly crop, and thus retains its productive capacity year after year, and is naturally long lived. We do not hesitate to say that no orchard should be without it, and so far as we know we believe it is to be obtained at almost every respectable nursery.

The Cause of Pears Cracking.

We have never seen a reasonable cause given for the cracking of pears, which in some kinds in certain localities crack so badly as to be valueless. The old English Butter, or White Doyenne, it is next to impossible to raise except in cities, but why there no one can tell. If it be true that a dressing of salt under the tree, to the extent of the branches, is a remedy, as a West Philadelphia correspondent some years ago asserted was the case with him, we have a remedy; but from no one else has this been confirmed. We have known trees of this variety to bear full crops from fifteen to twenty years without producing a half dozen perfect specimens. It is the same with the Glout Morecan, but not the same extent, as occasionally we have had perfect crops. But here the blight comes in, and is sure in the course of six to eight years to destroy the tree. The Bourre Giffard and Tyson are also occasionally subject to cracking in some localities, but in others there are no more perfect varieties. We would commend the use of salt, which has done so well for the correspondent referred to above. It can do no harm, it is not applied too profusely, and is attended with little cost or labor.

Stumps and Stump Fences.

In clearing land of timber, the next thing to get rid of is the stumps of trees. There are various ways to effect this, but the best we know is a level power used in the northern part of this state, and described some years

ago by our veteran correspondent, Mr. J. E. Vaughan, of Bradford county as the simplest, cheapest, most efficient and durable which he had ever encountered. It was originated in that county and was not patented. "It is merely a lever power with a sweep of some twenty feet in length, take up chains, etc. The rods for pulling are made of the best one inch iron, though some much larger. Four men and a span of horses will pull from thirty to forty stumps per day." The stumps, when the ground has become frozen, are one by one placed on a low sled, and carried to a dividing line for a field, and being placed in a row, with the roots on top, allowed to remain and the side ones generally removed, a stump fence is formed which will last for many years with scarcely any repairing, and as an efficient for all practicable purposes as a fence of any other kind. Many of these fences are now to be seen in numerous parts of northern and northwestern Pennsylvania, and they are so closely and firmly stationed that it is difficult for even a man to cross them.—*Gettysburg Telegraph*.

SUGAR TO BE MADE EVERYWHERE.

The following article was written for the Nashville *Artisan* by Mr. Peter Collier, of Washington city, who, the *Artisan* says, is the best informed man on the subject in the United States:

From the results already secured, it appears more than probable that, within a few years at most, we shall be able to secure a sufficient supply of sugar from sorghum to meet not only our own wants, but to be able to export it.

That such a result seems probable rests upon these few well-established facts:

1. About 35 per cent. of all the cultivated land in the United States, including the grass lands, is at present devoted to the cultivation of maize, thus showing that the conditions of soil and climate in our country conspire to make the production of maize profitable.
2. The demands made upon the soil and the conditions of climate necessary to the full development of sorghum are practically identical with those made by and necessary to maize.
3. The methods of cultivation of the two crops are identical, so that in every township of this country these methods are practically understood.
4. The greater part of the maize consumed in this country is used for the purpose of feeding and fattening swine, and numerous analyses of several varieties of sorghum seed have shown the proximate chemical composition of sorghum seed is identical with that of maize, the sorghum seed differing no more from maize in composition than does one variety of maize from another.
5. Numerous feeding experiments have established the fact that for feeding and fattening purposes, sorghum seed is the equivalent of maize and may be substituted for it.
6. As much sorghum seed may be produced from an acre as of maize on the same land, and wherever maize may be grown successfully in this country, one variety or another of sorghum may be successfully grown.
7. Fully ninety-nine per cent. of the sorghum now grown in the world is grown solely

for the seed and the forage obtained in the leaves, and abundant testimony is given that for the seed alone the crop may be profitably grown, while many of those using the stalks for syrup and sugar declare that the seed enables them to produce the stalks free of all cost.

8. It is only after the seed of any variety of sorghum is quite mature that the maximum of sugar in the stalks is attained, so that there is nothing to prevent the securing of both the maximum of seed and the maximum of sugar from the crop of sorghum.

9. Many thousands of analyses of over fifty varieties of sorghum have conclusively established the fact that at maturity the stalk of sorghum contains an amount of sugar equal to that found in the best sugar cane grown in Louisiana, and already by processes and apparatus identical with those employed upon the sugar plantations of Cuba and Louisiana several hundred tons of sorghum sugar have been put upon the market in competition with sugar from the tropical sugar cane.

10. The testimony of numerous manufacturers of syrup from sorghum shows that the syrup may be manufactured at an expense varying in different localities and with different manufacturers from twelve to twenty-five cents per gallon, from cane delivered free at the mill, even when working with small mills instead of the improved appliances of the large plantation.

11. A yield of six to eight pounds of sugar from the gallon of syrup made at the proper time may be fairly expected, and thus the sugar would cost, according to the expense of manufacture above given, from one and half to four cents per pound without any allowance for the molasses.

12. Excellent sugar has been made from sorghum, where accurate account of all expenses was kept, including cultivation of crop, but no account made of the seed, and the expense of production of this sugar did not exceed four and a-half cents per pound.

13. In view of these results I have no doubt that sugar may even now be produced at an expense of not over two cents per pound, and I believe that within a decade it will be produced at an expense of not over one cent per pound; at Hutchinson and Sterling, Ks., the average results for this year were 770 pounds of sugar per acre and seventy gallons of molasses, and an average of ten tons of cane to the acre. The average value of the product per acre was \$29.00. The gross product is about 600,000 pounds of sugar. The price paid for stalks per ton delivered was \$2. Those familiar with the results from sugar cane in Louisiana will see that these results are closely approximate to those from sugar cane.

POULTRY.

A Few Interesting Facts About the Different Kinds and Qualities.

Among the most delicate articles of animal food served at table are poultry—chickens, turkeys, ducks, geese, guineas, etc.—and these are produced in all parts of the United States. Usually they are mere adjuncts to the farm, but, in many instances, poultry raising, including eggs for the market, is a

distinct industry. For its main wholesale supply this city depends chiefly on the interior of the State and the West. There are numerous very extensive poultry dealers in this city, and, when in season, the arrivals are calculated by the ton.

Poultry has always been a largely consumed meat with the people, and in its increased production it has only kept pace with the increase of the population. Its packing for transportation is an important feature, and the experiences of both shipper and receiver have prompted and caused to be carried out such improvements in the way of packing dressed poultry, that it now arrives from the Far West in a solid, compact form, free from bruises, and sweet and inviting in appearance, almost equalling that brought to market for retail sales by the neighboring farmers. For a year past there has been a noticeable decrease of poultry—chiefly chickens—the causes of which are given more in detail below.

Chickens—Their Supply and Prices.

Chickens dressed or alive are in market the whole year round. They are considered always in season, but the consumption is much less in the city in summer time than at other seasons, the seaside resorts and hotels consuming the greater portion of the supply. Notwithstanding the fact that there are numerous breeds of chickens raised, from the diminutive sprightly bantam to the great lumbering horse-voiced Shanghai, the common barnyard fowl holds its own as a favorite for the table. It is easier raised on account of its hardiness and little attention required in its growth, its capability of being easily fattened and its convenient size. The mode of killing and dressing chickens now in vogue is a decided improvement over the old way of chopping off their heads, and leaving a repulsive-looking neck visible to disgust purchasers. Now a knife is dextrously inserted in the principal vein in the neck, and the chicken slowly and painlessly bled to death, leaving an almost invisible mark of the manner of the chicken's "taking off." A still neater way of depriving them of life is by bleeding in the mouth, by which all signs are removed. The feathers are now removed by what is called "dry picking." This process is accomplished by removing the feathers without placing the fowl in hot or boiling water, as was formerly the custom. The operation is commenced before the animal heat has left the body. Immersing the feathered fowl in boiling water frequently scalds the skin, or it is pulled off in places with the feathers, making what is now pretty generally considered an unmarketable article.

Preparing for Market.

By the dry process the feathers are easily removed and the skin left smooth, unbroken, and of an attractive appearance. In the further preparation of chickens for market the "unopened" practice is almost universally followed in most sections of the country, but in New York, and it is believed in Baltimore, they are required to have their intestines removed. The healthfulness and unhealthfulness of the two modes has been debated pro and con, but the question is still unsettled, with the chances in favor of the "unopened" chicken, the farmers and growers especially

siding with the latter, as they get paid for half a pound or more material. Chickens on farms are allowed the run of the fields and pastures, and generally manage to pick up sustenance sufficient to keep them in good condition during the summer. In the fall those intended for market are placed in coops and liberally fed with corn and other rapid fat producing foods. Farmers in this State and New Jersey, residing within driving distance of the city, usually prepare their chickens for retail sales from their wagons or directly to their customer consumers. The careful preparation of these chickens, their fresh, attractive, unrumpled—so to speak—appearance, not possessed by the packed article, despite the care now practiced in packing make them meet with more ready sale and at one or two cents per pound higher than the regular mercantile chicken. But few of them are brought to market in the summer season. As an article of sick diet and for consumption in hotels and seaside resorts, the demand for chickens continues all summer, but, of course, to a limited extent. To supply this demand the supply must come from distant points by railroad, and in order to preserve them fresh in the hot weather they are packed up in ice, which considerably increases the cost of transportation, which, with other charges and risks incident to the season, keep the price up to a sum equal to more propitious seasons. Chickens for more than a year past have been unusually scarce and high in price. Last spring a year the entire Western country was visited with long continued wet weather, which it is said completely drowned out the first "hatchings," the numbers so destroyed being estimated by perhaps over-sanguine dealers at one million. Up to the present time the market has not been enabled to recuperate from these losses. These disasters to the poultry world in the West did not reach sections nearer the city, and these latter poultry raisers with their usual supply have been reaping a rich harvest in the enhance prices obtained for their chickens. The present wholesale quotation for dressed chickens is 19 cents per pound, the former midsummer price being 12 cents.

Incubators at Work.

The high and remunerative price obtained for chickens has stimulated the introduction of incubators for the production of chickens without the aid of the mother hen. In Chester and Delaware counties, and near-by sections of New Jersey, the incubator has been largely adopted. Science has brought the machine to, it is claimed, as near perfection, especially in its automatic arrangements as to heat, as it is possible to reach. It is said that with properly selected eggs from 70 to 90 per cent. of chickens are produced. The fatality among chickens hatched by this system is somewhat greater than those hatched "in the good old way," owing to the difficulty of bringing the young brood successfully through its early infancy for want of a good "hen mother." There have not yet been enough of these "new process" chickens placed in market to affect the prices of the regular supply. Chickens in all stages of their lives, like nearly all other articles of food, have their enemies. Minks, rats, dogs, cats and hawks delight in killing them; cholera, gapes and other dis-

cases carry them off in large numbers, while the "midnight ornithologist," as the chicken thief is not inappropriately designated, depletes entire hen-roosts in a night. Spring chickens—none but the best—would be considered a luxury that can only be indulged in by the wealthier portion of the community, at the high priced hotels and restaurants and by the fastidious convalescent. Chickens weighing three or four pounds a pair will bring early in the season from 50 to 60 cents a pound, but wholesale dealers are at this writing holding them at 25 cents per pound dressed, and 20 cents alive. Live full grown chickens are at this season of the year, brought to market in considerable numbers, and are quoted at 17 cents. Caponized fowls are but seldom sold in this market. What few are so treated and sold are disposed of in the New York markets, where they readily sell for 27 and 30 cents per pound. A full sized capon will weigh from 10 to 12 pounds. Their meat is firmer, whiter, and they are considered more delicate eating than the common chicken. What few capons are raised are by New Jersey farmers.

The Supply of Turkeys.

Turkeys have the same white and dark meat, and they only differ in size and external appearance. The raising of turkeys is much restricted on account of their deficient egg-laying propensities, although a recent instance was recorded of a turkey in Chester county that had already laid 70 eggs this season, and was at last accounts still "keeping it up." Owing to this defection, together with the frequently long intervals "between eggs," it has been found difficult to keep the eggs in a hatching condition long enough to accumulate a "setting." After the young brood is hatched its early life is precarious. The youngsters' restless activity and inclination to run among the wet grass early in the morning and get lost, together with the numerous other fatalities attending young fowls, are among the difficulties attending the rearing of turkeys. It is said that some farmers are finding turkeys more "bother than they are worth," as they are destructive to crops and are great ramblers, and they leave quit raising them for market. The markets at present are almost bare of this species of fowl, the few that are consumed at seaside resorts and large hotels being furnished to order. The price generally rules about two cents per pound higher than that of chickens.

Scarcity of Geese and Ducks.

In comparison to turkeys and chickens their consumption is limited at all seasons of the year, there being none of either in market at the present time. Some spring ducks were held a couple of weeks ago by one or two wholesale dealers at 20 cents per pound. Were old ducks in market, the dealers say they would not command more than 12 cents. For geese there are no quotations. The supply to this vicinity comes, when in season, mostly from Delaware and Maryland. Ducks when hatched near a body of water are easily raised. They take to the ponds and streams before the shells are hardly off their backs, and there they spend their lives mostly, their chief enemy when in their infancy being large fish and water rats. Their food is chiefly small fish, grass and pond debris. The state-

ly goose has more difficulty in raising her progeny. Owing to their more cumbersome locomotion they are more liable to accidents of various kinds than ducks, and the same enemies beset them as lay in wait for their more diminutive cousins. The flesh of both goose and duck is dark, and when they are well fed it is "brought up" in the salt water localities, it is fatty and somewhat of a fishy nature, which are generally preferred by the few and disliked by the many.—*Philadelphia Ledger*.

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 all 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 any one, in great cities night air is often the best and purest to be had in twenty-fours. I could understand shutting the windows in town during the day than during the night, for the sake of the sick. The absence of smoke, the quite, all tend to make the 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 ten o'clock at night. Always air your room 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.

STATISTICS.

Statisticians have pronounced the United States to be not only potentially, but actually, richer than the United Kingdom. Counting the houses, furniture, manufactures, railways, shipping, bullion, lands, cattle, crops, investments and roads, it is estimated that there is a grand total in the United States of \$49,770,000,000. Great Britain is credited with something less than \$40,000,000,000, or nearly \$10,000,000,000 less than the United States. The wealth per inhabitant in Great Britain is estimated at \$1,160, and in the United States \$895. With regard to the remuneration of labor, assuming the produce of labor to be 100, in Great Britain 56 parts go to the laborer, 21 to capital and 23 to Government. France, 41 parts go to labor, 36 to capital and 23 to Government. In the United States 72 parts go to labor, 23 to capital, and 5 to Government.

CARE OF SWINE IN THE WEST.

The approved method of handling swine here in Eastern Wisconsin differs from that employed in the great corn belt, and approaches more nearly to practice in the Middle and Eastern States. In the first place, select the best sows your means will admit of, then procure a pure-bred boar as near your idea of a model hog as possible—a few dollars extra expended in getting a choice animal is money well invested. We breed our sows to farrow from the 20th of April to the 20th of

May, on account of our long winters, and I raise but one litter a year from a sow. The sows are fed during the winter on ground or cooked feed—barley or wheat middlings are good feed—but we do not want to feed much corn dry, as it induces costiveness, and there is not bulk enough about the corn without feeding too much.

The sows should be in smooth, fleshy condition, not fat, when they have their pigs. The first day or two they should have no feed but a little slop. Gradually increase the feed until the pigs are three weeks old, when the sow should be fed all she will eat. The place where the sow is kept should be arranged to allow the little pigs to slip out. Place a small trough where they will get to it, and when they are two weeks old they will drink a little sweet milk. Scatter some soaked grain—corn is the best—on the floor and they will quickly learn to pick it up. If pains are taken they will eat greedily at three or four weeks old, and ever thereafter they should be where they can run on grass. After they eat well I feed them on meal wet with milk, or, if I have but little milk, I feed them soaked corn, with warm drink made of fine meal, or middlings thinned with water and what milk I have. I wean the pigs when ten weeks old.

Soaked corn is prepared by soaking shelled corn in cold water twenty-four to thirty-six hours, that is until it is fully swelled but not sour. There is no food which pigs like better or upon which they will make better growth. Feed three times a day all they will eat up clean. Never allow a pig to get hungry, and do not feed so abundantly that anything is left. Give them a warm dry place to sleep in. With this care hog cholera would be everywhere, as it is here, an unknown disease.—*Press*.

IS THE PROCESS OF COOKING A KNACK.

It is said that there is a "knack" in cooking. If this means that there is a sort of separate sense or instinct which enables its possessor to cook well, and debars those who do not have it from ever acquiring proficiency in that direction, we deny it *in toto*. In cooking, as in every other kind of work, earnestness and brains are the two needful requisites to success, though these may fail of the highest, unless accompanied by an acute and cultivated sense of taste. The art of tasting must be learned and practiced faithfully, if one would become a good cook. As a pudding or a gravy, or a soup approaches its final stage of preparation, it should invariably be tasted, until long experience has made one sure that it is neither too salt nor too sweet, too peppery nor too flat. A tea-spoon and tea-spoon should stand beside the range, for this purpose, though it is, of course, unnecessary to say that the tasting spoon should never be introduced into the kettle. Another kind of knowledge indispensable to a good cook is a thorough understanding of the range or stove upon which one is cooking. No matter how carefully a thing may be compounded, if it is imperfectly boiled or baked, or fried, it is spoiled. Be sure that every damper and draft is understood before undertaking to cook with a new range. Then be sure that the ovens are right, that there is just coal or

wood enough in the fire and that the heat is likely to be "even" while the cooking is going on. As in painting it is necessary to understand anatomy and natural history, and a dozen other departments, which at first would not occur to one as connected in the least with anything artistic, so in cooking the departments of good eating and of the management of stoves and ranges must be understood before any culinary heights can be attained. I set it down as an incontrovertible fact that a person who does not know good cooking—and there are thousands of such people—can never make a good cook himself; that a person who does not know good butter from poor—who uncomplainingly eats sour or "sooty" bread, day after day, not knowing but that he is well served; whose doughnuts are soaked with fat; whose roast beef is dry and burned, and whose steaks are smoky and juiceless—that such a person will never be a good cook. Also, it is generally conceded on all sides, that a person long in the habit of incorrect cooking is incapable of learning better, which, indeed, is implied in what has been said before. If your poor cook is a mature woman and does not display uncommon earnestness, or remarkable acuteness, she is a hopeless case. Discharge her and get a younger one. In youth alone, in such a case, is there hope.—*Helix Devis, Utawa, N. Y.*

FARM DRAINAGE.

Drain tiles are made of brick clay, and of various sizes and shapes. The length of the tiles is usually about twelve to fourteen inches. The thickness of the wall of the tube depends upon the quality of clay employed and the size of the tile. The sides of the tile are more or less porous, but this is of very little importance, as the water enters almost entirely through the joints or space between the ends of adjoining tiles. The manufacture of drain tiles does not concern us, even though it might pay for the farmer, with larger areas to drain, to make his own tile, provided the proper kind of clay is close at hand.

The leading kinds of tiles are the "horse shoe," "sole," "double sole" and "round." The first form takes its name from the resemblance of the cross-section of the tile to a horse's shoe—the bottom being open. This form of tile has no valuable qualities not possessed by others and is so objectionable for some reasons that it has gone almost out of use. The "sole" tile has a wide, flat bottom. In drying, before burning, these tiles contract upon the upper side, thus becoming bent, and are laid with difficulty. These "sole" tiles cannot be put together with collars, now much used and highly recommended. The "double-sole" tile has a sole upon the upper side, which does away with any warping in drying. Such tiles are, however, so heavy that they cannot be transported cheaply. The objection of not being adapted to collars is also a great one. It is thus seen that the "round" tile is the tile for the million. On this point Colonel Waring, in his "Draining for Profit and Health," says: "Experience in both public and private works in this country and the cumulative testimony of English and French engineers have demonstrated that the only tile which it is economical to use is the best that can be found, and the best—much

the best—thus far invented is the pipe or round tile and collar, and these are unhesitatingly recommended for use in all cases. Round tiles, small sizes, should not be laid without collars, as the ability to use these constitutes the chief advantage, holding them perfectly in place, preventing the rattling in of loose dirt in laying, and giving twice the space for the entrance of water at the joints."

The leading sizes of round drain tiles are those with the core 1½ inches, 2½ inches and 3½ inches. The larger sizes when cut in sections make collars for the tile next smaller in size. Having settled upon the round tile with collars, the next point is to decide upon the size to be used. A tile should not be used that is larger than necessary, to render quickly the free water in a soil after a heavy rain. If the tiles are too large there is little or no pressure and they may become obstructed, while a smaller tile will have a full flow and be kept clean. The one and a quarter-inch tile is usually large enough for the upper portion of all lateral drains. They are able to drain from one to two acres. The next size, two and one-half inches, will serve for the main for a field of six to eight acres, and the three and one-half inch tiles for two or three times this area. If greater capacity is required two lines of tile may be placed side by side in the drain.

Before ordering the tile, it is necessary to make a calculation of the number needed. This can be done very accurately from the field stakes, which should have been driven along the line of the main, the sub-mains and all the laterals. If the area to be drained is a large one, the system of stakes will need to be thorough and complete. Tiles are usually made somewhat over a foot in length, and therefore, 1000 will lay as many feet, with a fair allowance for any breakage that may occur. Collars are more easily broken, and these should be ordered in somewhat larger quantities than the tiles upon which they are used.

It is wise to look into the qualities and prices of tile before concluding to give an order. A good durable tile is one that is well burned, and, when struck with a hammer, will give out a clear, ringing sound. It must be kept in mind that, to be profitable, a drain should be a permanent improvement. A poor tile in a drain is like a weak link in a chain, with this difference, that it is far out of reach, beneath the soil, and is replaced at great cost. There is nothing so foolish as to place a poor or broken tile in a drain. It is vastly better to throw half of the purchased tiles away than to have the drain ruined by using them. If possible, buy of parties who sell only first-class tiles at a first-class price. Having given an order, do not accept and pay for any other than tile fit to put in the drain. A warped tile is as bad as a broken one and should be rejected. Another point of great importance, too frequently overlooked, is to order far enough in advance to be certain of having all the tiles in the field when the time arrives for placing them. I have seen whole lines of ditches greatly injured, by delays of this kind, and, worse than that, have worked for days in clearing out fallen earth caused by a heavy rain storm while waiting for the tiles to arrive.

With the kind and sizes of tiles decided upon, their number and quality, in short, with the tiles and collars close at hand in full amount, we are ready to consider how best the trenches can be dug and the tiles laid.—*Boyle Aitch, in Phila. Press.*

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The January meeting of the Lancaster County Agricultural and Horticultural Society was held in their room, Monday afternoon, the 7th, and the following members were present:

Messrs. Henry G. Rush, New Danville; Henry M. Engle, Marietta; John C. Linville, Gap; Calvin Cooper, Bird-in-Hand; S. P. Eby, city; Daniel Smych, city; M. D. Kendig, Creswell; Frank R. Diffenderfer, city; Joseph F. Witmer, Paradise; Johnson Miller, Litzitz; J. M. Johnston, city; John H. Landis, Millersville; Wash. L. Hershey, Chickies; Peter S. Reist, Litzitz; Dr. W. H. Bollinger, city; John Gingrich, East Hempfield; Frank S. Clark, Dromore; Henry Shifner, Bird-in-Hand.

E. Clem Baldwin, of Salisbury township, was elected a member of the society.

The committee appointed to examine competitive essays on the wintering of home cattle presented the following report:

Your committee did the two essays handed in for competition of much merit. They go over the same ground very nearly and contain many valuable suggestions. They recommend that the first premium be awarded to the one marked "A" and the second premium to the one marked "B."

Crop Reports.

H. M. Engle said it was hardly worth while to talk about the crops at this time of year, everything is snowed under, and it is impossible to tell what may be the prospect for next year's crops. He reported the rainfall for November to be seven sixteenths of an inch, and for December, including melted snow, at 2 inches and six sixteenths.

Peter S. Reist said it was important to have the tobacco crop discussed. A large portion of it is in the hands of farmers, and there are reports of tip-rot and other damage. He was anxious to hear the real condition of the crop, and as to the best way of stripping, assorting and preparing for market. So far as he can learn the quality of the tobacco is good.

Mr. Engle said that some farmers in his neighborhood who had suffered from tip rot would cut off the damaged part of the leaf with shears.

S. P. Eby said he had two and a half acres of tobacco, and under direction of buyers, his farmer had cut off the damaged tips and baled the tobacco as usual.

J. H. Landis said that in his neighborhood the growers were making separate grades of their tobacco; the perfect was carefully separated from that which had mouldy tips and mouldy ribs.

M. D. Kendig regarded it as being very important to keep the good leaf separate from the damaged. He asked whether it was better in very wet weather, such as we had before the cold snap, to keep the tobacco house open or shut up. His own opinion was that it is better to keep the house open. He had noticed that the tobacco which was cut earliest and was the driest suffered more from tip rot than the later tobacco.

John H. Landis, of the same township, said this experience was exactly the reverse—the early cut tobacco escaped and the late suffered from tip rot.

President Reish said his best tobacco was that which had hung over his haymow, and his worst that which he hung in a shed near the ground. With one of his neighbors the case was exactly the reverse, the tobacco that was hung over the mow was damaged, while that which was hung below escaped. He believed that tobacco hung near the ventilators was

more likely to be damaged by mould than that which hangs further away from it.

The Sumatra Question.

Peter S. Reist thought it to be the duty of this society to look after the tobacco interests of this county, which are now menaced by the importation of Sumatra and other tobaccos grown on cheap lands and cultivated by cheap labor, with which we cannot compete, and which will drive our tobacco out of the market unless it receives the protection to which it is entitled. He thought something should be done to prevent the invasion of the law by which Sumatra tobacco was imported under a duty of 25 cents instead of 75 cents and a dollar, as the law contemplated.

Mr. Eby agreed that some action should be taken speedily, and that this society should take the initiative.

Mr. Kendig said a change should be made in the tariff law, which designed to protect us, but does not protect us. He urged early action.

Johnson Miller advised that the society call a meeting of the tobacco growers and get an expression of their sentiments on the tobacco tax question. It might be well to have a committee appointed to confer with the authorities at Washington, and to suggest the shaping of legislation in the tobacco growers' interest.

F. R. Diffenderfer said the only hope is in having the Secretary of the Treasury reverse his recent decision by which Sumatra wrappers are allowed to be imported at 25 cents when baled with 20 per cent of fillers. Relief cannot be looked for from Congress. The temper of the present House of Representatives is on the other side. He regarded the 35 per cent duty a clear invasion of the intent of the law and he thought the secretary of the Treasury ought to be induced to reverse his decision.

Johnson Miller moved that this society recommend that the farmers of Lancaster county assemble in the Court House on Monday next at 10 o'clock to take action on the question.

Calvin Cooper doubted the propriety of calling such a meeting in the Court House. Our experience in calling special meetings has not been very encouraging. He believed that the society's meeting room would hold who all would attend. He moved to amend by holding the meeting in the society's room.

Joseph F. Witmer said that the New York and New England delegation of tobacco men were to call upon the Secretary of the Treasury to-morrow. He advised that a telegram should be sent to them by this society, endorsing their action and seconding their efforts to have the secretary's decision reversed.

Peter S. Reist said that this society, as a society, should protest against the Sumatra fraud. In this we represent the thousands of tobacco growers in this county. He did not have much faith in calling together a mass meeting of farmers.

F. R. Diffenderfer advised that a memorial be prepared and forwarded by telegraph to our Congressman, A. Herr Smith, to be presented by him to the Secretary of the Treasury, when the New York and New England delegation call on him.

Johnson Miller withdrew his motion for a mass meeting, and on motion Mr. Diffenderfer and S. P. Eby were appointed a committee to draft a memorial. Mr. Diffenderfer, from the committee to prepare a memorial on the tobacco question, presented the following:

Resolved, That this society in common with the thousands of tobacco growers in this county and elsewhere, have learned with surprise and regret the recent decision of the Secretary of the Treasury regarding the introduction of Sumatra tobacco. This is the largest seed leaf producing county in the Union; its tobacco product in a single year has exceeded three millions of dollars; the value of barns and machinery employed is more than a million; it is thus jeopardized by the introduction of Sumatra tobacco at a duty of less than 75 cents. They therefore earnestly request that a rehearing of the case be had, and that the proper relief be afforded to protect the interest of our tobacco growers, now imminently jeopardized.

The resolution was unanimously adopted, and the

committee was directed to telegraph it forthwith to Congressman A. Herr Smith.

Competitive Essays.

John C. Linville, the author of the competitive essay marked "A," which was awarded the first premium of \$5, read an essay on "The Best Method of Wintering Horned Cattle," (see page 6.)

Henry M. Engle, author of another of the competitive essays marked "B," which was awarded the second premium of \$4, read his essay on the same subject (See page 6 of the present number of the FARMER.)

Election of Officers.

The following named officers were elected for the ensuing year:

President—Henry G. Rosh.
Vice Presidents—Jacob B. Garter and H. M. Engle.

Recording Secretary—John C. Linville.
Corresponding Secretary—John H. Landis.
Treasurer—M. D. Kendlig.
Managers—W. H. Brosius, Calvin Cooper, Casper Hiller, Joseph F. Witmer, F. R. Dillenferler.

Referred Questions.

"What are the most profitable books for farmers to read?"

M. D. Kendlig answered that Johnson's Elements of Agricultural Chemistry; Charles Darwin's Animals and Plants under Domestication; How Plants Grow; and How Plants feed, by S. W. Johnson; Farm Implements and Machinery, John J. Thomas; Barry's Fruit Garden; Downing's Fruits and Fruit Trees of America, and Downing's Landscape Gardening were his favorites.

Joseph F. Witmer would add to the list Allen's American Farm Book, Henderson's Gardening for Profit, Prof. Lewis's Farmer's Veterinary Advice, and Joseph Harris on Manures.

John C. Linville recommended Rural Studies; and My Farm at Edgewood, by Donald G. Mitchell; also, Herbert Spencer's works.

Henry M. Engle had no doubt all of the above were good works, and there were hundreds of others that might be read with profit. He advised, however, that farmers procure some good work on entomology and study it also, for there will be little use in learning how to raise good crops unless we learn also how to protect them from the ravages of insects that prey upon and destroy them. He commended Dr. S. Rathvon for what he had done in this important field of science, and regarded it as a shame that his labors had not been more highly appreciated. He had written an excellent work which ought to be printed and placed in the hands of every scientific farmer.

On motion the treasurer was ordered to pay John C. Linville \$5, and Henry M. Engle \$4, respectively, for their competitive essays.

Messrs. Engle and Linville thanked the society for the honor, but as they had not written for money they donated the premiums won by them to the society.

A vote of thanks was then extended them. Bills amounting to \$5.20, contracted by the librarian, were ordered to be paid.

The treasurer, M. D. Kendlig, presented his annual report. A committee of three was appointed to audit it and reported the receipts for the year to have been \$205.06; the expenditures, \$65.65; and the balance in the treasury, \$139.41.

The report was received and approved and the committee discharged.

John C. Linville, M. D. Kendlig and Calvin Cooper were appointed delegates to represent the society in the annual meeting of the state Horticultural Society which assemblies at Harrisburg on the 17th of January inst.

For Next Meeting.

"Is pork raising profitable?" Referred to Joseph F. Witmer.

After a desultory discussion as to the propriety of offering premiums to the boys who grow the best

crops of cereals in this county, and also the propriety of paying premiums for the best exhibition of fruits, cereals, etc., presented at each monthly meeting of the society, an adjournment took place.

POULTRY ASSOCIATION.

The Lancaster County Poultry Association held its usual monthly on Monday morning, January 20th, 1884.

The following members were present: J. B. Lichty, W. A. Shoemaker, F. R. Dillenferler, W. W. Griest, Charles Lippold, J. B. Leng, John A. Schum, Harry Schroeyer, John Shoemaker, Mr. Schmidt, J. L. Lyte, Frank Humphreysville and Harry Albright, city, and A. Sholer, Shoemaker; T. Frank Evans, Lititz; M. L. Grider, Mt. Joy; Peter Bruner, Mt. Joy; John Seidmridge, Ephrata.

The minutes of the last meeting were read and approved.

Mr. Shoemaker, in whose place the coops had been stored since the last show, said damage had been done in removing them. A committee was appointed to go and see the damage and arrange with Mr. Shoemaker for the same.

A vacancy on the Weighing Committee occasioned by the resignation of Mr. Bruner was filled by the appointment of Mr. Charles Lippold.

On motion of Mr. Schroeyer it was decided the Weighing Committee bring the birds to the Judge in his own room.

On motion it was agreed to allow persons to exhibit birds not on the premium list; such birds to pay 25 cents coop rent, but the birds not to draw premiums. The Secretary stated he had rented the hall to an Association for fifteen days for a rental of \$75.

He also stated the profits on the various catalogues issued could be about \$70.

A letter was read from the Secretary of the show to be held in New York on the same date as our own, in which it was agreed to receive birds from the home show up to January 22. This will enable exhibitors here to send their birds to the New York show.

It was agreed to allow exhibitors this privilege.

About forty names of exhibitors have already been handed in, although three-fourths of the entries are usually made during the two or three days before the show.

A resolution was passed giving the Secretary a certain sum of money for advertising purposes.

A motion was made and carried to send complimentary tickets to the editors of all the county news papers.

There being no further business the Society adjourned.

FULTON FARMERS' CLUB.

The club met at the residence of Grace A. King, on January 5th, 1884, members or others of their families all present except Montillon Brown, E. H. Haines and Josiah Brown. The latter was reported sick. The visitors were James Smalley and daughter, Marshall Nesbit and wife, Samuel Davenport and wife, Alfred Wood and wife, Joel Spencer and Robert Davenport.

The minutes of the last meeting were read and after some criticism approved.

Interesting Exhibits.

Wm. King exhibited some cotton grown by him, which was matured, thus showing that this plant can be grown in this latitude.

Grace A. King showed the club a novelty in the shape of a frosted goblet, the frost work being deposited all from evaporated brine.

L. Wood exhibited several apples for name. They were grown on trees that were very old. It was stated that these trees were good bearers and the apples are excellent keepers. They were not named.

Grace A. King exhibited a fine piece of handicraft, being a patchwork quilt, called the "Wonder of the World." There were about 3,000 pieces in it, no two being alike. It was much admired.

Asking and Answering Questions.

Rebecca D. King asked if it pays to knit woolen stockings by hand? Wm. King responded that it does not pay, because you can get a pair knit by machine for 20 to 30 cents, and as it requires on an average three days for a woman to knit a pair, 10 cents a day, was very poor pay and the women had better spend that time in reading. It was stated by some that machine knit stockings would not wear nearly so well as those knit by hand, and as the women could knit and read at the same time, they were not losing any time.

Wm. King asked whether a person can manure an acre of ground so as to make it produce 100 bushels of corn where 60 bushels is an ordinary crop? G. A. King thought it could not be done. Sol. Gregg was of the opinion that it could be done, but it would fall nine times in ten. James Smalley thought that we will have to come to higher manuring, more cultivation and cause our land to produce more bushels. Farm labor is getting scarcer and more expensive. Marshall Nesbit said there would be no trouble to increase to this amount in a favorable season, and Jos. Blackborn was of the opinion that it could be done with good tillage and under favorable circumstances.

Marshall Nesbit wanted to know whether bearded wheat chaff is of any benefit to stock? Some considered it of no benefit as feed, while some others feed it and think it of some value. J. B. Blackborn said he feeds it to his cattle mixed with oats chaff, and finds they eat it very well, but some will tire of it sooner than others, and to these he gives a smaller quantity. He thinks it causes them to eat their meals more slowly. James Smalley considered it very injurious to horses, and stated a case he knew of where a horse's death was caused by bearded chaff.

The club then adjourned for dinner, after which (the day being very cold) the usual inspection of the farm, etc., was limited, extending only to the barn and hog pens. Some of the members preferred confirming their inspection to the pleasant and comfortable parlor of the hostess.

Afternoon Session.

The minutes of meeting last held here were read and criticisms on farm management called for. The remarks were all of a favorable character. A pen of very fine hogs was spoken of and the general appearance was as good as the farms in general.

Mary A. King read a selection entitled "Empty Hands."

L. Wood read "The Seven Plagues of the Corn Crop."

Rebecca D. King read "Rockets Christmas."

William King read from the New York *Tribune* an article on the present manner of conducting Agricultural Fairs. After some remarks relating to the above article, the club adjourned to meet at Josiah Brown's, February 2, 1884.

LINNEAN SOCIETY.

The Linnean Society met statily in their rooms on Saturday afternoon, December 29th, President Wickham in the chair. The dues were collected, and the reading of the minutes of the previous meeting was dispensed with.

Donations to the Museum.

The donations to the museum were then examined and found to consist of

Two specimens of native copper, from the Eagle River Mines, in the State of Michigan. These specimens had been received by Wm. D. Stauffer, from a source unknown to him and by him donated to the Linnean Society, as the best disposition he could make of them. A good example and worth following by others.

A fine cocoon of the "American Lima Moth" (*Atrypa luna*) enveloped in elm leaves, from J. M. Westphaler.

The lateral half of a white cocoon, 1 1/2 inches in length, containing an almost black pupa one inch in length, of a species of moth belonging to the genus

Arctia or *Spilosoma*. The remarkable feature about it is, that it was spun on the edges of a number of unbound magazines, and the paper itself in the form of pulp, seems to have largely entered into the composition of the cocoon. The surface attached to the papers adhered so tenaciously that in attempting to remove it, the adhering portion was destroyed. I did not see the larva previous to its pupation, and therefore only locate it proximately. Donated to by Dr. Rathvon.

Specimens of *Lecanium persicum*, or "peach scab," together with a specimen of "lace-wing" (*Chrysopa*) which, it was alleged, was the parent. These were received by the curators three years ago from Berks county, and the person who sent them was quite confident that he had captured the progenitor of the "scabs." Of course, he had imprisoned the larva in the bottle, which subsequently span the little white spheroidal cocoon, and, incredible as it may appear, from this little cocoon the "fly" evolved whilst in the curator's possession. The larva of this "fly" is predaceous in its habits, and doubtless it was feeding, or trying to feed, on the "scabs."

Specimens of glass roofing tiles from Mr. L. S. Reist, of Oregon, Lancaster county, Pa. Mr. Reist states that Mr. Jacob Rupp, a farmer, of Earl township, has had a large barn covered with these tiles. They are made in different tints, and as they are put on to allow for contraction and expansion, they must not only be ornamental, but also very durable.

Donations to the Library

Six volumes of the "Second Geological Survey" of the State of Pennsylvania.

LANCASTER FARMER for December, 1883.

A copy of the Philadelphia *Evening Call*, November 6, 1883.

Lippincott's Monthly Bulletin for December, 1883.

Two catalogues of miscellaneous books.

Two book circulars.

Two envelopes containing 25 historical, biographical and miscellaneous scraps.

Transactions of the Anthropological Society of Washington, D. C., from February, 1882, to May, 1883.

One copy of Canadian Entomologist; London Daily Free Press, containing an address of Dr. Sanders on "Disinfectants," read before the Sanitary Convention, from C. A. Heinitsh; cabinet photograph of the library building of Rupert Howe Bancroft, in San Francisco, California; one book and two shell circulars from Paul Bajon, of Marseilles, France.

Report of Department of Agriculture of United States for 1881 and 1882, a finely illustrated volume, from Department of Agriculture.

Bi Centennial souvenir of Philadelphia, and a copy of the Philadelphia *Ledger* of August 22, 1861, with war news, from S. M. Seuer.

Report of State Agriculturist of Pennsylvania, for 1881, from E. G. Snyder, H. R., per S. M. S.

The Treasurer's report was then handed in and on motion read and approved. From an examination of the report it is seen that during the year the proceeds derived from payment of dues, etc., amounted to \$43.26, and that the expenditures amounted to \$5.70. The Curator's report was then read and on motion approved. The report shows that during the year the society has had added to its library 44 bound quarto and octavo vols; 124 serials, catalogues, etc.; eleven historical specimens, and thirty-seven envelopes of local historical scraps; forty circulars and twenty nine serial volumes have been bound.

The museum has received in Mammalogy 9 specimens; Ichthyology 3; Ornithology 10, including crania and bird architecture; Entomology 1 glass jar, and 21 smaller bottles containing hundreds of insects, besides 28 independent specimens; Reptilia 8; Botany 73 specimens; Mineralogy 65; Paleontology 3; Scientific Miscellaneous 12. During the year a new plant was added to the flora of the country by Pros. Stahr, and a new insect added to the list of the county by S. M. Seuer. Nine scientific papers were read before the members, and of these two were published entire in the "Daily Examiner" (for which we

here return thanks) and two were published in the FARMER. In all there has been an aggregate of 1,375 articles procured by the society, several of which were purchased.

The society then proceeded to the election of officers for the ensuing year, which resulted as follows.

President—Hon. J. P. Wickersham.

Vice Presidents—C. A. Heinitsh and Dr. J. Dubbs

Rec. Secretary—S. M. Seuer.

Treasurer—Dr. S. S. Rathvon.

Cor. Secretary—Miss Lefevre.

Librarian—Mrs. Zell.

Curators—Dr. S. S. Rathvon, S. M. Seuer, Prof. J. Stahr and C. A. Heinitsh.

On motion the office of Assistant Secretary was then dispensed with. The society then adjourned to meet on Saturday, January—1884, at 2 P. M. in the Museum.

AGRICULTURE.

Seed Crop.

The damage inflicted on the immature corn in the northern latitudes by frosts is a warning of the importance of careful selections of good grain for seed. In the North, where the season is short, those varieties only should be planted that ripen rapidly, and in the South those should be planted that ripen slowly. But the possibility of frost in September is not the only consideration that should govern the selection of seed corn. In the latitude of Michigan and the States south of us, we rarely have a severe frost before the 25th of September, or the first of October, and this danger is so slight, therefore, that farmers do not need to concern themselves about it. Still, there are other things to be taken into account in determining the character of the seed selected for planting: productiveness, hardness, weight and keeping qualities. Every large corn raiser in Missouri ought to carry on a little experimentation for himself, year after year. Tests of new varieties from distant regions may be made on a small scale, and when these reveal superior qualities in a new variety, it may be adopted. But it is found as a rule that the variety long grown in a locality is the best for that locality, and every farmer's experience strengthens this rule. But the local variety itself may be improved by careful selections carried on, year after year, with reference to the time of ripening, size of ear, weight of grain, and productiveness. In every cornfield there is to be seen here and there an unusually fine, heavy ear, matured early, well filled out with full grain compactly set to the tip, and bending down with its own weight. These are nature's hints to the farmer; they are the product of a law of growth by which vital vigor manifests itself conspicuously. These noble ears should be marked as the seed corn for the next season; and when similar ears are found in the field next season, they should again be selected. This process carried on through successive years will give a gradually improving grain, possessing the very qualities the farmer desires, and spare him the risk and cost of high-priced varieties from distant regions which he knows nothing about.—*St. Louis Republic*.

Theory of Crop Rotation.

It is now generally admitted that rotation of crops is rendered necessary not as formerly supposed because the soil becomes exhausted of some necessary element, or because unwholesome for that particular plant, owing to the poisonous excreta left by the roots, but because insects and diseases accompany the plant which are special to it, the eggs or spores of spores of which are left in the soil to attack the same crop in the next following year with hundred-fold increase of numbers and power. Prof. Bessey, of the Iowa Agricultural College, shows how this is the case with smut, which grows up through all the interior of a wheat plant and finally develops its spores within the bran casing of the grain, filling it not with flour, but with innumerable black, stinking seeds of the parasite which, when set free, float out, and stick fast to sound grains of wheat and also to

particles of the soil, where they lie ready to enter into the circulation of the next year's growth of wheat plants, unless killed by steeping the polluted seed in blue vitriol solution and drying off with lime. As to the polluted soil it is purified from the contamination only by using it for some other crop on which the smut plant cannot take hold.

Top Dressing Meadows.

When farmers have succeeded in getting good varieties of grass well established in a field they should endeavor to preserve it as long as possible. Considerable risk always attends the sowing of grass-seed. A good stand is not always secured, no matter how much pains are taken in the preparation of the soil and the sowing of the seed. The seed itself costs a considerable sum. In many cases only a very small crop of grain is produced on the land the year the seed is sown. Everything considered the cost of seeding a field to grass is large. It is accordingly desirable to keep it productive as long as practicable. The yield of grass may be kept up by the judicious application of fertilizers. Ashes, lime, loam-plaster, salt and commercial fertilizers are all highly beneficial, but stable manure is generally productive of the most satisfactory results. It should be well rotted, and ought to be finely pulverized before it is applied, or at least before it is left on the grass. The best time to apply it is in the fall. The soil is then firm, and teams can be driven over it without doing any amount of damage. The weather is then cool and the volatile portions will not evaporate as fast as in summer. Dew is ordinarily heavy and they will keep the moisture. Rains are frequent and they will dissolve the soluble parts of the manure and will carry the remainder close to the surface of the ground. Grass will come very early in the spring on loam manured in this way. It will make a large growth, but will have no offensive taste.—*Chicago Times*.

Agriculture.

After cattle go to the barn for winter they should have salt given them every week. If they have a lump of rock salt they can go to it every day and lick as much as they please, it will be even better for them. Milch cows should have at least a table-spoonful of fine ground bone every week. Professor Johnson, in his agricultural chemistry says that a milch cow giving 750 gallons of milk in a year and raising one calf whose bones will weigh twenty pounds, will also pass off in her milk as much phosphate as is contained in 39 pounds of bone dust, and in her urine as much as in seventeen pounds, making a total of sixty-seven pounds of bone material which are needed by a healthy cow each year. Of course, some portion of this is supplied by her food, especially if she is fed with wheat bran, which contains a larger percentage of phosphate of lime than any other substance usually given as food for cattle, excepting even cotton seed in that element, though not as rich in nitrogen.

HORTICULTURE.

The Orchard.

Old orchards, as well as young, should be carefully examined every year to remove any limbs that have died or showed any weakness. To remove large limbs not only is a sharp saw required but also a sharp ax and a two-inch chisel with which to smooth off the wounds where the limbs are sawed off, for, if the wound be left just as the saw leaves it, it will require a much longer time for it to heal over than if smoothed over so that there are no sharp corners.

In trimming old trees, when most of the branches of a large limb have died, it is best to remove the entire limb up to the trunk of the tree, for if left it will die back to the tree, or at least become so diseased that when cut off the wound will not readily heal, but will most likely begin to decay long before it is healed over. It is much better to remove large

limbs at this season of the year than during the spring months; the sap of the tree being comparatively fast the wounds are more likely to become dry and hard, than if cut in March and April. But at whatever season of the year a large limb is removed it should at once be covered with material that will keep the water out. Various substances are used for this purpose; formerly the wounds were covered with a mixture made of rapal parts of clay and cow manure; this was very good while it was kept on, but it soon washed off unless covered with a cloth, even then it would wash out under the cloth sometimes sufficient to leave a chance for the worms to get into the new wood. Shellac varnish has been used with good success, but this needs watching, as it will, if put on too thick, sometimes peel off. White lead slightly thinned with oil has been found to make so excellent covering, although there would seem to be an objection to using a substance with so much oil in it; but experience proves that a wound made by the removal of a large limb will heal as quick by keeping it covered with a good coat of paint, or by any other substance.

This is very easy to apply, and, as it will not wash off, it requires but very little attention after being applied, and there is not the danger of worms getting into the wound as there is with some other substances.—*Massachusetts Ploughman.*

Young Trees.

Young trees planted in the spring should be watched and their form regulated by pinching the shoots that push too vigorously, and by breaking off the shoots which start where branches are not needed. A little care given to trees while young will make later pruning unnecessary. A graft should be regarded as a tree planted in another tree, instead of in the soil, and its growth needs to be regulated by proper pinching. Often the growth from a bud will be very vigorous. If the top of this be pinched it will become stocky and throw out side branches.

Raspberries for 1884.

The first to ripen is Tyler, next is Ohio—"firm, dry and sweet; one of the most profitable for exportation"—and the latest is Gregg. These three, the *Rural Home* thinks, makes a good choice for a market-garden. Shaffer's Colossal—seeming in texture, color and flavor a cross between reds and blacks—is mild and pleasant to the taste, and largest of all, but its dull purple may prove an objection. Southegan resembles Tyler very closely. The reference to the latter, which has been commended by those who have tried it in different localities, we quote in full:

"Tyler came through the winter in better condition than any other variety on the place, and its great vigor and hardiness have been further proved by its enduring a superabundance of moisture during the last two months without injury. Wherever the rows of Gregg passed through wet localities leaves of bearing canes had a decidedly unhealthy appearance, curling, shriveling and dying, but the leaves of Tyler, under the same condition, were unaffected. The canes are very vigorous throwing out numerous branches, and berries appeared to grow thick all over the branches. The Gregg, Mammoth Cluster and some others show more compact clusters without berries. To give an idea of their productiveness: From rows fifteen rods long, planted two years ago last spring, now bearing the second crop, they had picked the preceding day a bushel to the row, and to look at the canes you would think it hardly possible that they could ever have contained any more. The berry is very large, in size only inferior to Gregg, deep black in color, without any bloom. This is greatly in its favor as a market berry, for the bloom on the ras, berry will soon turn a kind of purplish mouldy color, injuring its sale. Its flavor is a little acid, not more so perhaps than other varieties with exception of Ohio and Mammoth Cluster. There had been too much rain for berries to attain their full sweetness." [If Shaffer's Colossal is picked

every day the color is bright and handsome, and the berries exceedingly firm. Shaffer's will yield nearly double the crop produced by any other red raspberry on our grounds and meets with a ready sale.—*Green's Fruit-Grover.*

Storing Potatoes.

When very large quantities of potatoes have to be stored for a short time, or even during the entire winter, out-door pits may be resorted to; but for convenience of handling and the facility with which they are accessible at any season, a good cellar is worth more than the best of pits. A potato cellar should be so constructed that the floor is entirely dry at all times, that the frost and light can be excluded completely, and that perfect ventilation of every part can be given rapidly, sufficient to keep the air pure and the temperature as low as possible without falling below the freezing point.—*The Household.*

How to Support Fruit Trees.

The usual method of supporting overladen fruit trees is to place long stakes, with a fork at the top, beneath them. A much better and more simple method of effecting the purpose is suggested by *Dr. J. H. Mosse, of Lebanon, Pa.* Instead of using several stakes, one to each principal branch, he places a single strong pole against the trunk of the tree. The lower end of the pole, if desired, may be sunk a few inches in the soil for additional support, but usually it will be sufficient to secure it to the trunk by means of straw bands or other ties that will not bruise the bark. The pole being secured the drooping branches are relieved by means of ties made fast to it. *Dr. Mease* states that this method of tying up the branches of overladen trees is especially useful in storms, the support being central, and more natural than where several props are used.—*American Agriculturist.*

HOUSEHOLD RECIPES.

JELLYS PUFFS.—Two cups sugar, one cup butter, three cups flour, one cup sweet cream, three eggs, one teaspoonful soda, two teaspoonfuls cream tartar. Bake in a hot oven.

ORANGE CAKE.—Two cups sugar, one cup butter, one cup sweet milk, three cups flour, yolks and whites of five eggs, one teaspoonful soda, one teaspoonful cream tartar and one orange, grated.

NET CAKES.—One pint nut-kernels, powdered, one pound sugar, the whites of six eggs; three tablespoonfuls flour. Mix the nuts, sugar and flour thoroughly; then add the eggs, well beaten. Drop on tins.

FLORINATION CAKES.—Three cups sugar, three cups butter, one cup milk, five eggs, five cups of flour, raisins, currants and spices to taste. Bake in small scalloped tins; grate coconut and sift sugar over them.

SCOTCH CAKES.—One pound brown sugar, one pound flour, one half pound butter, a tablespoonful ginger, a teaspoonful cinnamon and one-half teaspoonful cloves. Mix the ingredients thoroughly and moisten with two eggs. Roll thin.

RICH PLUM Pudding.—One and a half pounds flour, one pound currants, one pound sugar, half pound citron, eight eggs, half ounce mace, one pint milk, one grated nutmeg. Mix thoroughly and boil four hours. Serve with hard sauce.

TING.—Whites of three eggs, juice of one orange, fifteen tablespoonfuls of sugar. Beat together and spread between the layers and on the outside of the cake. Pare and pull in small pieces two oranges, and put the bits on the top of the cake.

GRISY PUDDING.—Cut one stale sponge cake into thin slices; spread them with currant jelly or preserves; put the slices together like sandwiches, arrange them in a dish, make a soft custard and pour over them white hot. Serve cold with ice cream.

MOCK TURTLE SOUP.—Shank, heart, liver of veal, 1 pint of flour, browned in oven, 1 cupful of butter,

2 hard boiled eggs, 1 lemon, 1/2 nutmeg, salt, pepper. Boil meat 4 hours and strain. Cut the heart and liver into small squares, using a cup of each in the soup; rub the butter and flour together, and stir in; slice the egg and lemon in tureen and pour soup over them; add four meat balls.

SAUCE FOR Puddings.—The yolks of two eggs, one cup of white sugar, one tablespoonful butter. Beat the eggs and other ingredients well, and add one cupful boiling milk. Then place it over the fire and let it come to a boiling point. Flavor with vanilla.

HARD SAUCE FOR PLUM PUDDING.—One cup sugar and half cup butter beaten to a cream, add the beaten whites of two eggs; beat a few minutes longer, then add one tablespoonful of brandy and one teaspoonful extract of nutmeg. Keep on ice until wanted.

FORCE MEAT BALLS.—1 cupful of raw veal chopped fine, 1 cupful of cracker crumbs, 1 tablespoonful of butter, salt, pepper, mixed well. Make into small balls, roll in egg, fry brown.

MINT SAUCE.—1 cupful of fresh gathered spear mint, cut fine, 1 tablespoonful of sugar, 1/2 cupful of vinegar, salt and pepper; 15 minutes before serving mint pour the vinegar dressing on it.

MACARONI.—Break into pieces 2 inches long enough macaroni to fill a pint bowl; boil in 1 1/2 pints of salted water half an hour; then add a cupful of milk and a small piece of butter, and boil 15 minutes more. Place it in a dish. Half fill the dish, and scatter over cheese cut fine, add remainder of macaroni, and upon the top shavings of cheese and a few bits of butter. Brown in quick oven.

WINE SAUCE.—1 cupful of butter, 1 1/2 cupfuls of sugar, 1 cupful of wine, 1 egg, (yolk only.) Beat thoroughly and cook over boiling water.

SCOLOPED POTATOES.—Slice raw potatoes, then place them in layers in a baking-dish, seasoning each layer with salt, pepper, bits of butter, and a dust of flour, until the dish is nearly full. Fill the dish with milk. Bake 1 hour, until the potatoes are creamy.

RISE CROQUETTES.—1 cupful of rice, boiled in 1 quart of water, 1/2 teaspoonful of salt. When done add 1 tablespoonful of butter and the yolks of 2 eggs. Let it cool, roll into balls and fry.

BAKED EGGS.—Break eggs on a buttered dish, keeping each one whole; put a little salt, pepper and butter on each one, and bake in a moderately hot oven until the whites are set; serve on same plate hot from the oven.

CORN BREAD.—1 cupful of corn meal, 1 cupful of flour, 1 cupful of milk, 2 eggs, 1 tablespoonful of sugar, 2 tablespoonful of melted butter, 3 teaspoonfuls of baking powder.

CARROT PUDDING.—1/2 pound flour, 6 ounces suet chopped fine, 1/2 pound currants, 3 tablespoonfuls sugar, 2 ounces candied peel, 1/2 pound carrots well boiled and rubbed through a sieve. Mix the other ingredients thoroughly, then add the carrots. Boil 4 hours.

TYRON'S PUDDING.—1/2 pint new milk, 1 cupful of flour, 3 tablespoonfuls sugar, to be mixed together and boiled 5 minutes, then pour it into a basin; when cold add 4 eggs well beaten; flavor. Put the mixture into a well-buttered mould, and steam it 4 hours. It is excellent when cold with fruit.

SOFT PUDDING.—Cupful of suet, cupful molasses, 2 teaspoonfuls of soda, cupful of dried cherries, 1/2 teaspoonful of salt, 1 1/2 cupfuls of sweet milk, flour for a thick batter. Steam 3 hours.

HUCKLEBERRY PUDDING.—Cupful of chopped suet, cupful of molasses, cupful of milk, 3/4 cupfuls flour, 1 quart of berries, 1 teaspoonful soda. Steam 1 hour, and serve.

BREAKFAST ROLLS.—One pint of new milk, 2 teaspoonfuls of sugar, 1 tablespoonful of flour, 1/2 cupful of yeast, a little salt. Mix quite stiffly at night, and in the morning roll out, using no more flour than is necessary for the bread board; cut with a cake cutter, rub one half with melted butter; fold over. Let them rise, and bake for breakfast.

CHERRY COBBLER.—Turn a teacup bottom upwards in the center of a pudding dish and fill the dish with sour cherries (stoned) and plenty of sugar. Cover with a nice baking powder crust about $\frac{1}{2}$ inch thick, and bake until the crust is done. Carefully raise the cup when it is cut, and underneath will be the rich juice for sauce.

BIRDS' NEST PUDDING.—Pare nice peaches and remove the stone from as small an opening as possible, then fill each with sugar; place in a pudding dish and pour over them a nice custard and bake.

SNOW PUDDING.—Soak $\frac{1}{2}$ a box of gelatine in just enough water to cover it; add 1 pint boiling water, 2 cupfuls sugar, juice of a lemon; strain after it is thoroughly cooled. When it commences to thicken add the beaten whites of 3 eggs; beat all together (with an egg beater) until creamy, then turn into a mould. Serve with a boiled custard turned around it.

MONDAY'S PUDDING.—Cut remains of a cold plum pudding into finger pieces, soak them in a little brandy, and lay them cross-barred in a mould until filled. Make a custard flavoring with nutmeg or lemon rind, fill up the mould with it, tie it down with a cloth, and boil or steam it for an hour. Serve with a little of the custard poured over it, to which has been added 1 tablespoonful of brandy.

FRIED CHICKEN.—Cut 2 chickens in pieces, sprinkle with salt and pepper, about an hour before cooking dredge flour over them. Beat 2 eggs, slip each piece in this, and fry in hot lard. Roll up a cupful and a half of cream or rich milk, and add a spoonful of butter rubbed into a spoonful of flour with a little salt; stir constantly until it boils again. Lay the chicken in a fricassee dish, pour the sauce around them and serve.

POTATO BALLS.—Mash boiled potatoes fine, stir into them the yolk of an egg, and make them into balls; then dip them into a beaten egg, roll them in cracker crumbs and brown in a quick oven; or, fry them in a small quantity of oil, drizzles; flatten them so that they can be easily turned and browned both sides.

OMELETTE.—One cupful of new milk, 1 cupful of bread crumbs, 5 eggs, salt and pepper. Beat well together, and turn into a buttered spider; cook a minute or two on top of the stove, then place in the oven to finish, fold $\frac{1}{2}$ upon the other, and serve hot.

GRAHAM GEMS.—Two cupfuls of water, $\frac{1}{2}$ cupful of sweet milk, 3 cupfuls of Graham flour, 1 teaspoonful baking powder, salt. Bake in gem pans in a quick oven.

BERRY PUDDING.—1 pint molasses, 3 pints berries, 2 spoonfuls cream tartar, 1 spoonful soda, salt. Stir into the molasses a handful of flour, add the cream tartar, then the soda, and while foaming add the berries and flour enough to make it as thick as you can stir with the spoon.

QUEEN'S PUDDING.—3 eggs, $\frac{1}{2}$ pound butter, 3 tablespoonfuls sugar, and 3 small cups of flour; bake in muffin rings; to be eaten with hard sauce.

APPLE BUTTER PUDDING.—Core and peel 8 apples, put in a dish; fill the place from which the cores have been taken with brown sugar, cover and bake. Beat the yolks of 4 eggs, add 2 cupfuls of flour, with 3 eggs teaspoonfuls of baking powder sifted with it, 1 pint of milk, a little salt, then the whites well beaten, pour over the apples and bake. Use with sauce.

TOMATO SOUP.—2 quarts of beef stock, 1 onion, 1 potato, 4 tomatoes, 2 eggs, salt and pepper. Boil onion and chopped potato in the stock 1 hour, then strain, add tomatoes, and just before serving, the egg, well beaten.

BAKED FISH.—Wash and file the fish nice, and fill with a dressing made of bread soaked in cold water; when soft, drain off the water and heat into it 1 egg, a little salt, 1 table-spoonful of chopped pork, 1 table-spoonful of chopped parsley, pepper. Sew up the fish, cut strips of salt pork and put around the fish, then put it into a baking-pan and dredge with salt, pepper and flour; cover the bottom

of the pan with hot water and put it into a rather hot oven, basting often. Garnish with parsley and slices of lemon.

SAR-PHATIC.—The macaroni used should be the best Italian, and must be placed to boil in plenty of water, let it cook 10 or 15 minutes, boiling hard all the while. A sauce for it is made by slowly boiling all the morning a piece of beef steak (a $\frac{1}{2}$ pound will suffice for small family), to this add enough canned or other tomatoes, an hour or so before serving, to give the sauce a rich red color. As much water only should be used as will leave the sauce rich and thick. Let every one sprinkle grated Parmesan cheese for himself.

LITERARY AND PERSONAL.

REPORTS OF OBSERVATIONS AND EXPERIMENTS in the practical work of the Division, made under the direction of the Entomologist, with plates, U. S. Department of Agriculture, Bulletin No. 3, Division of Entomology, 72 pp. octavo. Three full-page plates, with twenty finely executed illustrations.

We are under obligations to Prof. C. V. Riley, U. S. Entomologist, for a copy of this excellent bulletin, containing as it does some original matter of value to the farmer and small fruit grower in the north, as well as the cotton grower of the south.

In this report it is authentically stated that the *army-worm* will feed and thrive on different species of plants, and also what it will not feed upon; but would rather starve to death than touch it; but, even some of the plants upon which they experimentally fed, evidently had an unhealthy effect upon them. Garden poppy, cabbage, radish, garden pea, raspberry, carrot, parsnip, garden lettuce, garden beet, onion. These plants, but with some hesitation as to cabbage, they ate more or less readily, and survived from fifty to seventy-five per cent. Cotton, grape, garden bean, strawberry, henlock. In the case of these last named, all died in the larval state, feeding, however, on cotton and strawberry sparingly. The other named plants they would not touch.

It seems to have been demonstrated that the army worm did feed destructively on a Mr. Rockwood's young cranberry shoots, but that it did not touch the older and tougher leaves. This was, however, not a fair test case perhaps. Mr. R. permitted a good deal of grass to grow among his cranberries; his farm being laid out in blocks surrounded by ditches containing water. After the grass was devoured, and because they could not escape new pasture grounds, they fell upon the young and tender cranberry leaves, as their only remaining source. Since the tobacco plant has now at least two dozen enemies which it scarcely had half a dozen 20 years ago, may it not be possible that these army worms will ultimately be able to adapt themselves to almost any kind of food; especially since it is said, they sometimes devour each other?

This bulletin also contained an interesting paper on NORTH AMERICAN CO-SIDE, by Doctor James S. Bailly, of Albany, N. Y., in which the species are all handsomely illustrated, including the eggs, larvae, pupae and imago. Also, a report of the examination of raw silks by Doctor Wm. McMurtrie, of Illinois, Lud University, with illustrations of the different flies. This reveals the fact that a species of *coscia* was somewhat abundant, some twelve years ago, in the chestnut trees, on Chestnut Hill, Lancaster county, Pa., and that Messrs. Brinkart and Eshleman, of Silver Spring, collected a number of them, but somehow, perhaps through the death of the former, we failed to get specimens of them, until they were spotted by being immersed in weak spirits.

ORNTHOLOGIST AND OOLOGIST.—A 20 page 8vo. magazine, published by Frank B. Webster, Pas-tucket, R. I., at \$1.00 a year in advance. Printed on fine full colored-paper, in clear type, and handsomely illustrated. This is a valuable publication to the student in Ornithology and Oology, especially as its matter is all original, of a practical character, and contributed by those who make these branches

of natural history a specialty; and no intelligent and progressive student should be without it.

AGRICULTURAL REVIEW, and journal of the American Agricultural Association. Vol. III., No. 5, for December, 1883. Subscription \$3.00 a year, published at 52 Park Row, New York. This journal is a consolidation of "De Bow's Review," "Southern Industries," and the former "Ag. Review." An international and inter-sectional magazine, devoted to American agriculture and industry. A square octavo of 153 pages, illustrated. Tinted covers, and with 24 pages of advertisements; John W. Johnston, W. M. Brownell, Joseph A. Real, and Ralph S. Saunders, editors, and more than a quarter of a hundred distinguished contributors from all parts of the country. It has a large issue and circulation, and hence is an invaluable advertising medium, as it reaches not only "across the continent," but also foreign shores.

TWENTY FIRST and twenty-second quarterly report of the Pennsylvania Board of Agriculture, 1883; a royal octavo of 56 pages; three full-page plates of colored illustrations; a tabulated plate illustrating the prices of wheat, corn, rye and oats from November 1, 1882, to November 1, 1883; and three wood cuts illustrating "the Danish Western Centrifugal Cream Separator." We are under obligations to somebody for the receipt of a copy of this work, and we welcome it the more because it is the first page we have received from this organization for years.

The report contains the minutes of the summer meeting of the Board held at Erie, Pa., August 8th, 1883, and the autumn meeting held at West Chester, October 24, 1883. Reports on the state of crops and stock from the different counties in the Commonwealth, some of which are copious; reports of the county fairs for 1883, by intelligent members of the respective agricultural societies, nearly all of which have been financially successful, and some of them largely so. Of course, no notice was taken of the "Independent State Fair" held at Lancaster, which was not a legitimate organization of the State.

Then follows an illustrated essay on "Peach Yellows," by Prof. Penhallow, of Montreal, Canada. We have not had time yet to peruse this with sufficient care to make it available to our readers, moreover, the FARMER was nearly made up for January when we received the report; but, from the mere glance we have been able to give it, we infer there is that in it which would be valuable to the fruit-grower to know. An illustrated and tabulated article on "Cream Separators," is next in the order of succession, (by the Secretary of the Board) followed by a meteorological table from December 1, 1882, to December 1, 1883, by J. L. Heacock, of Bucks county, Pa.; and lastly, tabulated analysis of Fertilizers issued by the Pennsylvania Board of Agriculture, from March to December, 18-3, beginning with No. 300 and ending with 518. As these analyses are of standard value to the farmer, and as we have inserted all that have been made under the auspices of the Board, we shall continue the list in a future number. The profit in these publications is in reading them, understanding them, and practicing whatever in them may be of value to those for whom they have been written and published.

HOME, FARM AND FACTORY.—Devoted to Agricultural and Mechanical Progress and Home Entertainment." The best of to-day may be improved upon to-morrow." Vol. 1, No. 5, December 15, 1883. A royal quarto of 16 pages, very creditably gotten up, and ably representing its announced specialties; published monthly by the Home, Farm and Factory Company, 1213 Cass Avenue, St. Louis, Mo., at \$1 a year, postage paid; Calvin D. Hulbert, manager. As a special inducement subscriptions will be received from now on to the 1st of March at 50 cents, which is only half price. Twenty one correspondents contribute to this number, on various practical subjects, and its editorials and selections exhibit rare ability.

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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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Dr. S. S. Rathvon, who has 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 householders.

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All communications regarding editorial management should be addressed to Dr. S. S. Rathvon, Lancaster, Pa., and all business letters in regard to subscriptions and advertising should be addressed to the publisher. Rates of advertising can be had on application at the office.

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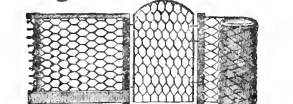
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lished by Isaac Tillinghast, La Plume, Pa., at 50 cents a year; an 8vo. of 32 pages, ably representing its specialties. This journal and its sponsor are widely and favorably known in Pennsylvania and elsewhere, and offers the most liberal list of premiums that we have yet seen, and if any of our readers wish to avail themselves of the benefits of the same, we would advise them to send to the publisher for a list. The largest club premium is \$200 in cash, and the lowest \$5, and as the 1st of March is the limit, what is done should be done soon.

REPORT OF THE STATE HORTICULTURAL SOCIETY OF PENNSYLVANIA—A royal octavo of 50 pages, beautifully illustrated and containing the proceedings of the twenty fourth annual meeting of the association, held at Harrisburg, in the rooms of the "State Board of Agriculture," commencing January 17, 1885. This beautifully printed work also contains the constitution and by-laws of the society; a list of its officers for 1885; its committees, life members, honorary members, and its annual members, together with the president's address, essays, reports, etc.; of standing committees and members, on various subjects connected with fruit-growing and gardening. Illustrated with colored plates of "New Seeding Primrose," the "Iola" cherry, and the "Red Raspberry"; also uncolored plates of the "Clark" apple, the process of "bleaching" celery, the "Seidel" apple, and wood cuts of the "transformations" of the "Coaling Moth." On the whole, so far as a mechanical and artistic execution are concerned, at least, it is superior to any report, heretofore published by the society. The greatest draw back to the usefulness of these reports is, the fact that members and outsiders only come into possession of them one year after the meetings have been held. This is, perhaps, not the fault of the society, but of the State—"that slow coach"—which is the medium through which they are brought before the public.

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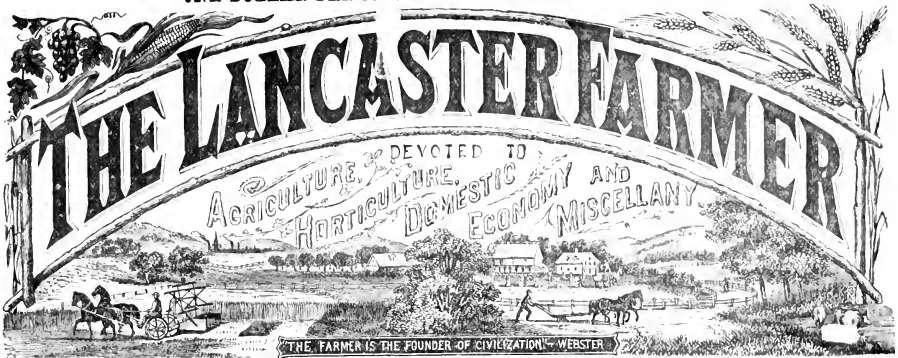
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Entered at the Post Office at Lancaster as Second Class Matter.

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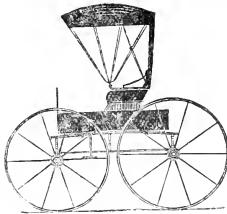
On and after SUNDAY, JUNE 24, 1885, trains leave the Depot in this city, as follows:

WE TWARD.	Leave	Arrive
Fast Express.....	1:35 a. m.	Harrisburg, 2:55 a. m.
News Express.....	6:25 a. m.	7:30 a. m.
Way Passenger.....	6:30 a. m.	8:50 a. m.
Mail Train via Mt. Joy.....	9:30 a. m.	10:50 a. m.
Mail No. 2 via Columbia.....	9:30 a. m.	11:05 a. m.
Niagara Express.....	9:45 a. m.	10:55 a. m.
Hanover Accommodation.....	9:50 a. m.	Col. 10:20 a. m.
Fast Line.....	1:35 p. m.	2:55 p. m.
Frederick Accommodation.....	1:45 p. m.	Col. 2:15 p. m.
LANCASTER Accommod'n.....	2:30 p. m.	4:00 p. m.
Harrisburg Accom.....	5:30 p. m.	7:50 p. m.
Columbia Accommodation.....	7:30 p. m.	Col. 8:15 p. m.
Harrisburg Express.....	7:40 p. m.	8:50 p. m.
Western Express.....	11:10 p. m.	12:25 a. m.
EASTWARD.	LANCASTER.	PHILADELPHIA
Mail Express.....	12:42 a. m.	3:55 a. m.
Philadelphia Express.....	2:47 a. m.	4:25 a. m.
Fast Line.....	5:35 a. m.	7:50 a. m.
Harrisburg Express.....	8:10 a. m.	10:20 a. m.
LANCASTER Accommod'n.....	9:00 a. m.	11:45 a. m.
Seashore Express.....	1:58 p. m.	3:15 p. m.
Johnstown Express.....	2:20 p. m.	3:55 p. m.
Day Express.....	5:25 p. m.	7:25 p. m.
Harrisburg Accom.....	6:45 p. m.	9:45 p. m.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 1:35 p. m., and runs to Frederick, Hanover Accommodation, west, connecting at Lancaster with Niagara Express at 9:45 a. m. will run through to Hanover daily except Sunday.
Harrisburg Express, west, at 7:40 p. m. has direct connection to Columbia and York.
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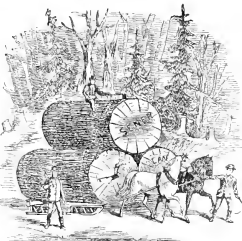
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nov-17

The Lancaster Farmer.

Dr. S. S. BATHVON, Editor.

LANCASTER, PA., FEBRUARY, 1884.

Vol. XVI. No. 2.

EDITORIAL.

FEBRUARY.

"I quickly turned myself away
From his cold-stinted gaze,
And sought companionship with one
Of a more genial phase,
A hale and short-set burly man,
That looked the sort of humor,
And seemed to be as urbane as
A fancy French perfumer,
But soon he don'd his rugged cloak,
And with a chilling look—
That like a northern iceberg fell
Into a sunny brook—
He summoned up old Boreas—
The god of winds contrary,
And bid me say to mortals, that
I'd seen old February."

FEBRUARY, according to our present computation of time, is the second month of the year. The name is derived from the Latin *Februarius*, and was introduced into the Roman calendar by NUMA POMILIUS, the successor of ROMULUS, as King of Rome. It was regarded by the Romans as the month of expiation, because on the 15th of this month the great feast of expiation and purification was held. The Latin name seems to have come from *februum* originally, which, in the Sabine language meant a purgative, hence the plural *februa*, meant the Roman festival of purification; and *februre*, to purify, to expiate. In Italian, it is *Febbraio*; in Spanish, *Febrero*; in Portuguese, *Febrerio*; in German, *Febrier*; in French, *Fevrier*.

Among our local "Pennsylvania Dutch," it is frequently called "Hornung." It is the shortest month of the year, having but twenty-eight days, "till leap-year gives it twenty-nine," which occurs in the present year (1884) called *Bissatle*. The second day of February is *cauldrons day*, when, in the Roman Catholic Church there is a candle procession, to consecrate all the cauldles which will be needed in the church during the year. Among the old Pagan Romans there was a custom also of burning cauldles to the goddess *Februa*, Mother of Mars, to scare away evil spirits. Among the Catholic churches, however, this festival has a higher significance. The cauldles symbolize *Hin* who was called "the light of the world—a light to lighten the Gentiles."

The second day of February is also our "marmot," or "ground-hog" day. It is not certain that the ground-hog prognostications originated in America among the Pennsylvania Germans. Be that as it may, however, a notion existed in Europe, that if the weather is fine and frosty at the close of January and beginning of February, we may look for more winter to come than we have had up to that time.

The Scotch had this proverb:

"If candlemas day be dry and fair,
The half o' winter's come and mair;
If candlemas day be wet and foul,
The half o' winter was gaue at you."

Which Sir Thomas Browne included among

his "*Vulgar Errors*." This is surely not American, nor German either. Nevertheless it seems that *there did exist among the Germans an old proverb*, to the effect that "the Mirmot peeps out of his hole on candlemas day, and if he finds snow he walks abroad; but if he sees the sun shining he draws back into his hole again." To this has been added, perhaps in America, that if he "sees his shadow" he returns to his lair and remains there six weeks longer, and that we shall have no spring until that time, to which it might be replied that he seldom, if ever, have spring, short of six weeks after candlemas day. But, if he *don't* see his shadow then he will remain abroad, for we shall have an early spring.

February is the month in which the outdoor work of the farmer begins to loom up, although subjected to many frosty interruptions, especially in the latitude of Lancaster county. Still, this is the month, among all others, in which the farmers, in times past, were wont to sow their clover seed, as soon as the snow disappeared, no matter how frosty it may have been, and it never has been successfully demonstrated that it is not the best time.

It would be difficult to establish an inflexible rule as to what should be done and what left undone, in the garden and the field, in the month of February, for that must ever depend upon contingencies, over which the farmer has no positive control. "Wind and weather"—temperature, moisture, and the general condition of the ground—will suggest to the *intelligent* farmer, gardener and nurseryman, what ought to be done, and when and how to do it, independent of town or city dictation. But, if he is not intelligent the physical condemnation of ignorance, at least, will be upon him, whether he be responsible for it or not. Under ordinary circumstances, however, when the month of February, makes its advent, we may console ourselves with the thought that two-thirds of the winter is past, and that the lengthening of the days, and the increasing influence of the sun's rays are gradually, but surely, breaking up the wintery spell.

"AN OPEN WINTER."

More than two-thirds of the winter—so far as the matter relates to what are called the winter months—are past and gone, and yet we fail to discover that "open winter," which had been so confidently predicted by those who profess to be weather wise. During the late summer and early autumn of 1883, paragraph upon paragraph was quoted, all going to prove, that from the general conduct of the pelicans, the geese, the ducks, the deer, the coons, the marmots, the bears, and other beasts and birds, a very mild winter would follow in the wake of last summer and autumn; but, it appears that all the prognostications, based upon animal instinct, have utterly come to naught. And the very por-

tion of our vast domain from whence most of these prognostications came, were among those which suffered most from the fierce "blizzards" that so largely gave tone to the present winter. It is had enough when human prophets shoot so wide of the mark and prophesy falsely, but it is still worse when animals—said to be guided by unerring instinct—commit such meteorological blunders. Now, as animals generally do come nearer to the truth through the dictates of instinct alone, than human beings often do through their reasoning powers, it seems to follow that there must be some cause for their mistake, in regard to the present winter. The fact is, "Men cannot do as they used to *did*, because things are not as they used to *was*," and this category may also embrace the animal world. Through what is termed human progress, or human improvement, the face of our globe is becoming changed. Altered circumstances, acting as causes, are producing altered effects, all relating to altered ends, and for the sake of universal harmony. Springs, streams, watercourses, rainfalls, storms and floods, have changed in their respective characteristics, growing out of the altered condition of the earth's surface. The animal world is not yet prepared for this change, which is an innovation upon their natural domain, hence they must change their tactics to the new order of things. A waterfowl may, peradventure, say to itself—"we are going to have a dry summer, therefore there is no need to build my nest on higher ground. I will just built it *here*;" and behold, an unavoidable flood comes, and "wipes" nest and egg out of existence, because the natural means to stay the flood have ceased to exist.

A hitherto wise "old seivrus," perchance may say to his fellow rodents, "We are going to have an *open winter*, hence I shall not trouble myself about gathering, acorns, hickory nuts and shellbarks for my winter store." When lo, a northwest blizzard banks up the snow in miniature mountains about the bases of the nut-bearing trees, bringing the squirrels to grief, all because the face of nature has changed so much as to make such snow mounds possible, instead of a more even distribution of it over the land.

Thus, it will be perceived, that "all signs fail in dry weather," and not in dry weather only, but perhaps quite as frequently in wet weather.

Much stress, by some people, is laid upon the prognostications of the ground hog. We need not repeat them here, for they are well known to our readers, if not to whole country. On Saturday, February 21, of the present year, was Candlemas, or "ground hog day," and according to that species of philosophy, there will be yet six weeks of severe winter weather, because, forsooth, the ground hog, if he came out of his hole at all, saw his shadow, and immediately returned to his nest for another nap of six weeks at least.

But suppose he has only been *dreaming*, like the prophets of last summer, and his dreams like theirs, "goes by contraries my dear," what will become of his prophecies in fact?

The fact is, meteorology is not an "exact science." It hinges upon too many uncertain contingencies. It is not susceptible of a mathematical demonstration just yet. Its principles may be correct in isolated particulars, but fails in their general combinations. Its elements do not come yet within the scope of human foresight and human will. The "running-gears" of the system are still imperfect, and are not in harmony with the changes which are taking place upon the face of the earth. It is, perhaps, like the hunter's dog that was sure to catch the fox, provided said fox did not run too fast. We do not mean to say that thermometrical, barometrical and isothermal phenomena may not manifest themselves within a given space, so as to render a forecast of the weather something more than probable, but it is somewhat different when the area is measured by millions of square miles, and is based upon faulty human observation alone. And when such forecast is rendered three or six months in advance of the eventuation of the prophecy, the result must be more or less unreliable. But, whether it *must* or not, it *has* been, and that *has* been works an exception to the rule. Notwithstanding the prognostications of the present winter have gone "aglee," we don't have a "chirp" from the prognosticators through the medium of the public press. As to the ground hog's prophecy we have from now until Saint Patrick's day to make our observations upon it. Under any circumstances there does not seem to be much of a risk in predicting six weeks of winter weather from and after the 20 day of February, for it is rarely that the spring opens before that period.

OURSELF, AND OUR RELATION TO SPECIAL INQUIRERS.

With the most kindly feelings, and the profoundest regard for all who are making sincere efforts to advance in a knowledge of any of the natural sciences; we are, nevertheless, compelled to say, that from a want of time, and the presence of a disqualifying physical infirmity, it is impossible for us to accord a verbal "interview" on natural science at our place of business, and during business hours; except of the briefest and most common place character. We wish, on account of the social ban which our condition imposes upon us, that it were otherwise. Our deafness is daily and sadly increasing, compelling us to fight the social battles of life at a great disadvantage. At the same time, any question, within the scope of our limited abilities, propounded through the medium of the pen or the press, will receive our respectful attention, and a reply, through the postoffice or the columns of the LANCASTER FARMER—with the preponderance in favor of the FARMER—be, cause, through the latter channel, information on any subject becomes more generally diffused, than by a merely personal reply. Surely, if anything in natural or physical science—in agriculture and domestic economy—is worth knowing at all, it is worth committing to paper, and placing on record for the benefit of those "whom it may concern."

It is a great mistake to suppose that a naturalist—especially one who is under the necessity of earning "his bread by the sweat of his face" in an incompatible secular occupation—can be tapped at any moment, as you would tap a full wine cask, and yield an immediate flow to any and every thirsty applicant. The mind and memory have their stratifications, and when the stress, the anxieties, and the responsibilities of business affairs become superincumbent, it requires effort, time and tranquility, to break and remove the upper stratum, in order to explore those that lie below. It is different when the day's work is done, and retirement to the quiet closet supervenes, and all the surroundings suggest a different train of thoughts.

Will our patrons, and inquirers in general, think of these things? and help us to build up an effective department in our journal, specially devoted to "Inquiries and Answers." We have long been in the effort to accomplish this, and yet although many may desire knowledge, they fail to *ask*, that it may be given them.

HIGH WATER—FORESTRY.

The calamities of the present year are fast "repeating" those of 1883—especially so far as they relate to high water in the western streams—and no foresight can now determine what may transpire before it ends. The waters of the Ohio river at Cincinnati reached over 70 feet higher than low water mark, which was five feet higher than it was a year ago, and the death destruction, deprivation and distress, were greatly in excess of former catastrophes.

Without specially particularizing the damages at Pittsburg, Wheeling, Marietta, Cincinnati, Madison, Louisville, Jeffersonville, and all along the Ohio and its tributaries, as well as along the Mississippi, they were almost incalculable, and the details in many instances heart-rending. These are all effects of some greater causes and permitted for some greater evils, but how long and how intensely will the people suffer before they are able to apprehend that cause, or acknowledge the end? It seems to be very widely conceded that the almost reckless "progress" of our country is effecting such a change upon its surface, as to exercise an adverse influence over its meteorological character. Of course this theory has been, and still is ably combated, but not successfully refuted.

No man who has been brought up outside of the compact limits of a great town or city, and who has attained to the age of 60 or 70 years, but has noticed a very perceptible difference in the meteorology of his boyhood, and that of the present period. We have been convincingly cognizant of such changes in special cases, and if this is true in *particulars*, how can it otherwise be in *generals*, generals being made up of particulars—except that in the former the changes are correspondingly greater, and if adverse the evils resulting from them proportionally greater. It hardly admits of an argument that the removal of the forests of a country, rings a change in its winds, its waters, its temperatures, as well as in its droughts, and in its general meteorological characteristics. We do not pretend to say that special seasons

may not intervene during which there may be few or no storms or floods—little or no snow or high water; but if there are not, it will be contingent upon causes, or combinations of causes, which exercise a counteracting control, and of which we may be as altogether unadvised, or *unbelieving*, as we are and have been in the former case.

A practical and *living belief* does not consist in a mere lip confession, saying, "I believe;" nor yet in the invocation, "Help thou mine unbelief." It consists in active co-operation; not in a passive attitude, but in an aggressive one—a working faith in what is rationally necessary to be done under an intelligent conviction of duty.

The greed for present gain in our country is becoming such that the forests are rapidly becoming injudiciously, or ruthlessly slaughtered. If railroads increase as rapidly for the coming twenty years as they did during the past twenty the demand for railroad ties will be such that our forests cannot bear them in connection with other demands, unless an active renewal of the forests supervene. The selfhood of man suggests, "Let posterity take care of itself," my only care is to "eat, drink and be merry." Such selfish logic, in the face of the distress and physical suffering which many localities of our country are experiencing now, through the injudiciousness of our immediate ancestry, is a very near approach to moral crime, in the mildest form it can be put. No one has a moral nor even a civil right to do as he pleases with his *own* property, unless his pleasure lies within the sanctions of civil and moral law. Hence, the State and National Legislatures should take cognizance of the forestry of the country and *compel* that which it seems will never occur *voluntarily*.

Had our ancestors been totally selfish—had they not planned, and toiled, and improved and progressed in behalf of their posterity, we might be now little farther advanced than the uncivilized races. But, with our advanced experiences, we should improve on the blunders which they inadvertently made, and especially those which relate to the forests of the country.

If it should ultimately be demonstrated that destructive floods are contingent upon other causes than the removal of the forests, good will result from the agitation of the question, for two such widespread calamities as the floods of 1883 and 1884 are contingencies that the country cannot long endure.

BIG JAW CURABLE.

LEAVENWORTH, Kan., Dec. 30, 1883.

There is considerable alarm among farmers and stockmen about "big jaw," and for the benefit of those who are interested in cattle, I will give the fact of a cure on my Shorthorn bull. Four years ago this fall I noticed a large swelling on his jaw. My superintendent had examined it several times and was at a loss to know what it was. I took out our veterinary surgeon and he pronounced it, as soon as he examined it, "big jaw." I told Gen. J. C. Stone, and he went and saw him, and was of the same opinion. He saw a prominent stockman in Missouri and told him of my bull. He said I will give you a cure that I have never known to fail if applied regularly:

Take one-half pint of turpentine and forty-five drops of creosote and apply twice or three times a week externally, being careful not to get it on your hands or in the animal's mouth.

We followed the directions twice a week. It made him cross and we had to tie him when the remedy was applied. In about four weeks it broke and kept running for some time and occasionally we would apply a small quantity. The bull got well and he is now on my farm, and no one would even suspect he had big jaw.—*Wm. Booth, in Live Stock Indicator.*

We don't know to what extent "Big Jaw" (unless under some other name) now exists in Lancaster county—or even in Pennsylvania—but we know it *did* exist when we were a farm-boy, some sixty years ago, and we also have an impression that it was generally considered incurable; although on one of the farms where we were engaged, a case had been cured, but it left the animal blind of an eye. In another case it almost culminated in a law suit; because one butcher had intimated that another butcher had slaughtered an animal afflicted with *Big Jaw*, and had sold the meat to his customers. It possibly may have been true, but it could not be proved, hence the matter was dropped through the disavowal of the party who initiated or circulated the report.

We insert the above on account of the remedy for big jaw which it contains; and the simplicity of the ingredients and their application. The coincidence is somewhat singular that in the above case, as well as in the cases we refer to, the animals afflicted should have been "Bulls," as if bulls were more liable to it than cows or oxen.

After his cure, "our bull" was finally sold to a stock feeder who lived about five miles off, and it devolved upon us to drive him to his new owner; and never can we forget the trial, the vexation, and the fear it occasioned us. The animal left his old home reluctantly, and when he got the "share" on us from the blind side, it involved a tremendous effort to bring it to a "head," after the manner of a bull or fellow, in order to make it "break" and discharge the collected *pus*. It was, perhaps, cancerous in its character, and when it affected the bone was incurable. Under any circumstances, Mr. Booth seems to know what it is, and also how to cure it, and that is sufficient for those who may have occasion to try it.

A REMARKABLE CATERPILLAR.

There is a genuine case of a living creature becoming converted into a vegetable.

It occurs in a caterpillar that lives in New Zealand and in Australia. There are several specimens at the College of Surgeons, London, and elsewhere. We see a caterpillar as hard as if it was carved out of a piece of wood, and from it is growing a long stem. The history of it is as follows:

The caterpillar eats a fungus, or the spores of a fungus, and these immediately begin to grow in its inside. The insect feels uncomfortable, and possibly thinking that it is going to turn into a chrysalis buries itself in the ground and there dies.

The fungus goes on growing and absorbing the entire contents of the skin, taking the exact form of the creature. Having done this, it throws out a shoot, and this always at a certain fixed spot—namely, at the joint at the back of the head. Several foreign naturalists possess specimens which they have kindly shown and explained.

This caterpillar is found also in China, where it is used as food.

Nature, frequently prone to produce in inanimate substances models of her own living creations, has produced a plant that resembles a snake in a most remarkable manner. This is a simple house-leek which in certain stages of its growth remarkably resembles a snake.

A hairy viper was once seen in the Algerian country, near Drariboh, which resembled an enormous caterpillar. It was of a brownish-red color, and its length was about twenty-two inches. The moment it saw that it was observed it glided into the brushwood and all attempts to discover it were unavailing.

The foregoing, which is "going the rounds of the press"—so far at least as concerns the "remarkable caterpillar"—with some modification, contains nothing that is absolutely remarkable or new. Had it been considered either remarkable or new one would have supposed the instances of the kind that have occurred in our own country, ought to have found a place in the columns of our *live* newspapers at least; but no, they must go away off to Australia, and New Zealand, and China, to find examples of these phenomena, countries so remote that most people would believe or disbelieve at once, rather than to attempt to prove or disprove them. Sixteen years ago, and at various subsequent periods, Prof. C. V. Riley, described, illustrated and published, in the *American Entomologist*, in the reports of the *various and innumerable* insects of the State of Missouri, and in other publications, accounts of a very similar character.

One of the subjects that came under his observation had two long fungoid stems, which grew out from the *under side* of the anterior segment (or between the segment and the head) of a white "Grub-worm," one of which stems was fully five inches in length. The grub seemed to be the *larva* of a species of MELOLONTIDÆ, a family that belongs to the section of LAMELLIGOMIA, in the order COLEOPTERA. And these observations of his have been amply corroborated by other reliable authorities. The theory in the above extract is, perhaps, the true one, or makes an approximation to it.

Vegetable "snakes" are often produced in twining plants, and are not considered as very remarkable. The form of a snake may be very easily imagined in long, naked twining plant stems, when there is very little foundation for it. Doubtless the hairy Algerian viper may be purely the creature of an easily excited imagination. Being only "once seen" requires further confirmation to render it authentic. But the fungus, white grub worm has long since been placed upon perma-

nent record in the scientific annals of the country, hence there is no necessity in going abroad for a confirmation of it—unless, like *fashion*, a foreign paternity be necessary to give it currency in a land of republican simplicity.

VERY COLD WEATHER.

The month of January, 1884, was pretty generally cold; not only throughout the United States, but also throughout Europe. We think we can recall at least one temporary local record, within the county of Lancaster, where the thermometer marked a lower degree of cold (32 degrees below zero, we believe), but the cold was not so uniform, nor so protracted, as it was during the last month. The following is an analysis of the meteorology of the month, and also the temperature and the precipitation of the months of January from 1872 to 1-83, as prepared by an officer of the Signal Corps, U. S. A.

METEOROLOGICAL SUMMARY FOR JANUARY.

Mean daily barometer, 30.157.
Highest barometer, 30.887, on the 27th.
Lowest barometer, 29.132, on the 9th.
Monthly range of barometer, 1.755.
Mean temperature, 5.23, on the 9th.
Highest temperature, 35, on the 5th.
Lowest temperature, 10, on the 5th and 7th.
Greatest daily range of temperature, 28, on the 8th and 9th.
Least daily range of temperature, 3.5, on the 1st.
Mean daily range of temperature, 13.4.
Mean daily dew-point, 21.9.
Mean daily relative humidity, 73.4.
Prevailing direction of wind, S. W.
Total movement of wind, 6693 miles.
Highest velocity of wind and direction, 25, N. E., 30.
Number of clear days, 6.
Number of fair days, 15.
Number of cloudy days, 10.
Number of days on which rain or snow fell, 18.
Dates of frosts, 14th, 21st, 30th.
Total rainfall, 5.49.

Comparative Temperature. Precipitation.

1872.....	29.6	1.37
1873.....	29.0	5.04
1874.....	35.4	4.58
1875.....	24.8	2.83
1876.....	37.4	1.52
1877.....	27.9	2.12
1878.....	32.6	3.04
1879.....	39.5	2.83
1880.....	40.9	1.51
1881.....	26.9	3.66
1882.....	31.2	4.57
1883.....	30.1	4.13

T. F. TOWNSEND,
Sergeant Signal Corps, U. S. A.

The most remarkable feature of the winter is that there were six weeks (nearly) in succession, during which there was good sleighing, including the entire month of January, from the first day until the very last. We remember during the winter of 1-31-5, that there were—with one or two temporary intermissions—nine consecutive weeks of excellent sleighing, during a part of which period it was exceedingly cold, but we do not remember the register.

When no registry is made, and the summer or winter happens to be above or below the ordinary temperature, the one present always seems the hottest or the coldest. In this respect, we are prone to forget the past, in our realizing sense of the present, and our anticipations of the future. Unless we have suffered in a special sense the present winter, it would be hard to say what recollections of it we will carry over to the next winter—if we live so long—whatsoever its character may happen to be. Live and see.

THE POULTRY EXHIBITION.

The exhibition of January 1884 was certainly a credit to our local poultry association; and although it was a spectacular success, we regret to learn that it was not so financially. The association did its duty, but the citizens of Lancaster, and Lancaster county, did not do theirs. It occurred at a season when there was nothing to prevent the people from patronizing it—if they had *valued* it. Perhaps far less meritorious and less respectable exhibitions were liberally patronized during the continuance of the fair, because they presented attractions more in harmony with the people's taste. True, there may be some people—indeed there may be *many* people—to whom a "chicken show" may not be congenial, unless the chickens were served upon dishes, garnished with "buckwheat cakes and sausages." Even these might be interested or benefited, if it were nothing more than to see how a chicken looks "in the rough." But the great variety, and the great perfection, in the "poultry world," that has been wrought by patient, persevering, human instrumentalities, ought to excite the wonder and even the admiration of all who are at all interested in progressive domestic culture. *Galliniculture* and its literature, occupies some of the brightest and most practical minds of our country, and the good accruing to society from it is of paramount value to any rational community. The Lancaster Poultry Association has already made a reputation that has spread throughout the length and breadth of one entire country. It is quoted from the Atlantic to the Pacific coast, and from Maine to Mexico. What was the poultry stock twenty or even ten years ago, compared with what it is to-day? It is one of the greatest special industries in the entire Union, and its productions in eggs and birds amount to many millions of dollars, and is destined to an indefinite increase. The various improved incubators are effecting a great revolution in poultry production, both in quantity and in quality. Its progress, like any other useful or ornamental industry is upward and onward, and indifference or discouragement from outsiders cannot possibly arrest it. People will have their improved "chicken-fixings," whether chicken fairs succeed or not; and, so long as the stock is there, whether it compensates their projectors or not, there is no such thing as fail.

A RARE FOWL.

On Wednesday morning, as Miss Viola Heiss, daughter of Mr. George Heiss, tobacconist, residing at No. 45 South Queen street, was feeding the chickens in the yard, she observed and was greatly surprised at the sudden alighting of a very strange bird from a considerable height above her amongst the poultry. She quickly noticed that it was peculiar and somewhat pretty, when she at once called for her father, but who had left the house without her knowing the fact. However, Mr. Charles Edinger, neighbor next adjoining, hearing the alarm, and being noted as an expert shot, quickly obtained his gun and shot the bird. Being shown to quite a number of persons assembled and no one being able to tell what it was or to what species of fowls it belonged, it was taken to Prof. S.

S. Rathvon, who thus very fully describes it: "MR. GEORGE W. KENDRICK: The beautiful, coal black, velvety duck, with the large quadrangular spots on each side of the bill, belongs to the "Sea Duck" family (FULGULINE), and is common (coastwise) to both Europe and America, northward. In Europe it is called the "Velvet Duck," *Melanetta Velectus*. In America it has received many synonyms, perhaps the most authentic of which is *Edemia perspicillata*, or "Long-billed Scoter." It is a winter visitor of the coast of California, and usually only reaches the Middle States, in flocks of twenty or thirty, about the month of September, where it feeds along the coast, on fish, crustacea, shell-fish, spawn, sea-weed, etc. It is said to be a remarkably expert diver, but its flesh is considered too strong and oily to suit the taste of epicures, although under favorable circumstances it may be eaten.

The sub-family FULGULINE embraces some of the handsomest subjects that belong to the great family ANATIDÆ, which includes swans, geese and ducks. The beautiful "Merganser" or "Sheelarakæ," is nearly allied to it. The "Shuffler," the "Blue-bill," the "Ring-neck," the "Red-head," the "Canvas-back," the "Whistler," the "Golden-eye," the "Dipper," and the "Harlequin-duck," in its many varieties, all belong to this group.

Dr. Coues says: "The assigned characters of the American bird are very slight, certainly not warranting specific distinction, and scarcely affording grounds for varietal recognition." Dr. C. is good authority; but if the illustration of the typical species in our possession is at all reliable, then the specimen exhibited to us to-day furnishes ample grounds for "varietal recognition," to amateurs at least.

Wilson describes this duck under the name of *Edemia nigra*, or "Scoter duck," and gives it an immense geographical range—Lapland, Norway, Sweden, Russia, Siberia, Denmark, Kamtschatka, in the latter of which it is said to breed, far away from the coast. They are said to be so abundant in the river Ocht-ska that the natives kill them (in large parties) with clubs, to the number of 1,000 or 1,500 at a time.

Perhaps there is nothing in ornithology more "mixed" than the birds belonging to the sub-family Fulgulinæ.

In connection with this subject I most respectfully beg leave to say that this specimen, as well as many other specimens in natural history, ought by all means to be in the possession of the Linnean Society. That organization is an incorporated institution, has been in existence for twenty years, and has in its possession many specimens of birds, etc., that were prepared fifty years ago, which, if it had not cared for and preserved them, would probably not now be in existence. Its members have been devoting their time, money, and uncompensated labor during those 20 years, without any hope or desire for pecuniary reward. A few liberal-minded people have so far abnegated self as to contribute to its museum and library, and a trifle to its treasury, but by the masses it has been almost entirely ignored. Many specimens that should have been donated to it,

years ago by those who possessed them have since been destroyed, or are masses of ruins; the parties owning them losing interest in them, and yet unable to make up their mind to donate them. These objects of vertu are accumulated and husbanded for the use of the rising generations, and not for any pecuniary profit to the present members.—*New Era*.

This bird is now in the hands of Mr. George Flick, the well-known taxidermist of this city, for the purpose of preparation for future preservation.

EXCERPTS.

ONE of the puzzlers to many farmers' boys has always been where the successive crops of stones come from. No matter how often or thoroughly the stones were hand-picked every plowing brings to the surface a new supply. It seemed to us in boyhood that there was no end to stones, and fairly seemed to justify the general belief among boys that "stones grew." The truth is that plowing opens the soil so that frost penetrates more deeply. The stones being larger particles of soil settle under them as they are lifted by frost, gradually raising them till they come within reach of the plow. On hilly land some of the surface soil is washed away when loosened by the plow, leaving more stones within its reach, and in any cultivated soil there is generally a gradual waste of vegetable matter, which, of course, leaves the stones nearer the surface.—*American Cultivator*.

If a dairyman wishes to insure a clean stable and comfort for his cattle in winter we know of no better way to do so than to bed down his stock with black mud from the swamps and ditches. It mixes well with the manure, and makes one of the most valuable composts. Besides its intrinsic value, cattle bedded down once a week with it would be all that is required. It would save labor in cleaning the stables, which ordinarily is done daily, and would leave the cattle in a much cleaner and healthier condition where the ammonia is absorbed than when left neglected to wallow in their own excretions. A few loads of dry mud placed under shelter, convenient to the cow stables, would add greatly to the manure heap and general thrift of the farm. This is the experience of those who have tried it, and all should do so wherever practicable.—*Orange County Farmer*.

PROFESSOR BROWN, of the Ontario Agricultural College, says he feels assured that the cause of the somewhat prevalent animal consumption, or tuberculosis, among cattle, and lung disease among sheep is due largely to sudden variations of temperature in winter, brought about mainly by the over-anxiety of many men in regard to the comfort, so-called, of their animals, who believe in having the thermometer at 70° inside when it stands at 10° outside. He thinks it is a clear mistake, under any circumstances, to shut the door on sheep.

A WRITER in the *New England Homestead*, finding that the cut worms destroyed his tobacco plants as fast as he set them, procured a basketful of chestnut leaves which were young and tender, and after steeping them in water which contained one tablespoonful of Paris green to each gallon of water, he placed a leaf over the spot where the plants were to

be set. The worms ate holes in the leaves and lay in clusters dead, or so stupid that they did no further harm to the plants which were afterwards set out, and a fine crop was harvested.

SPEAKING of the possibilities of a single acre of ground, when stimulated to the highest degree, the *New England Farmer* refers to a farm that was made to increase its annual crop of hay from seventy-five tons to 300 tons, and the crops now produced per acre are from eighty to 125 bushels of corn, forty to sixty of wheat, eighty to 100 of oats and four to five tons of hay. These crops, while involving greater expense, do not entail greater cost proportionately to the yields, and if a farm can be thus made productive the task is much easier with a small area.

CRANBERRY JELLY mixed with cold water makes a refreshing drink for a sick person.

A **LITTLE BORAX** put in the water in which scarlet napkins and red-bordered towels are to be washed will prevent them fading.

SLICED bananas and oranges mixed with chopped pineapple, with powdered sugar scattered over all, make a delicate dish.

BLACK kid gloves are sometimes a source of annoyance on account of little white streaks at the seams. This trouble may be diminished by coloring a little salad oil with black ink, and rubbing this over the white places with a feather; dry quickly outside the window.

For seriously chapped hands try this: Scrape a cake of brown Windsor soap until it is all as fine as powder; mix it with an ounce of cologne water and an ounce of lemon juice. Stir this very thoroughly together, shape it into cakes, let it harden, and then use it when you wash your hands.

POTATOES IN CASES.—Bake potatoes of equal size, and when done and still hot, cut off a small piece from each potato; scoop out carefully the inside, leaving the skin unbroken; mash the potato well, season it with plenty of butter, pepper and salt; return it with a spoon to the potato skin, allowing it to protrude about an inch above the skin. When enough skins are filled, use a fork or knife to make rough the potato which projects above the skin; put all into the oven a minute to color the tops. It is better, perhaps, to color them with a salamander. They will have the appearance of baked potatoes burst open.

VANDERBILT'S capital of gold is greater than all the gold there was in the world—conquering Rome in the reign of Augustus Cæsar. 200,000,000 dollars in gold! or 359 tons of gold! or 700,000 pounds of gold! or 11,200,000 ounces (avoirdupois) of gold! How many freight cars would be required to carry this gold? Then you'll say at a jump. No—thirty-five! Turn the gold into golden "eagles," ten-dollar coins, lay them in a circle, edges touching, what would be the circumference of that circle! It would be a ring over three hundred miles in circumference.

The annual proclamation of the Secretary of the Treasury, of the value of foreign coins expressed in the money of the United States, to be taken in estimating the values of all foreign merchandise made out in said currencies, imported on or after January 1, 1884, makes

the following changes from the proclamation of January 1, 1883: Australia, from 30.1c. to 38.9c.; Bolivia, boliviano, from \$1.2c. to 80.6c.; Ecuador, peso, from \$1.2c. to 80.6c.; India, rupee, from 33.6c. to 38.3c.; Japan, gen, from 87.6c. to 86.9c.; Mexico, dollar, from 88.2c. to 87.5c.; Peru, sol, from \$1.2c. to 80.6c.; Russia, rouble, from 65c. to 64.5c.; Tripoli, mahbub, from 73.3c. to 72.7c.; U. S. of Columbia, peso, from 81.2c. to 80.6c.

From forty to fifty degrees is the temperature for a bee-cellar in winter.

If the frost heaves up the fall-plowed ground the entworm is the sufferer on such occasions.

The directors of the Louisville Exposition have decided to give another chance to exhibitors next season.

The Aroostook (Me.) farmers can only get \$1 per barrel for their potatoes, and are holding them for higher prices.

It is best to defer purchasing pigs till spring, as they make but little growth when separated from the sows at this season.

FOURTEEN farmers of Olmsted county, Minnesota, have gone to Europe after stock, their motto being "the best is none too good."

The fig can be grown as far North as Norfolk, Va., and can be grown from seed or propagated from cuttings, layers or suckers.

It is a noteworthy and gratifying fact that the "salt" feature of dairy conventions has been pretty thoroughly eliminated from the discussions and resolutions.

Rust and smut feed differently on the wheat plant. Rust is usually on the stalk and feeds on the panicle prepared for the seed, but smut feeds on the seed itself.

LET the litter in the stables be kept dry at all times. Standing on hot or fermenting manure has a tendency to make the hoofs of the horses brittle, and eventually brings on lameness.

SAYS the Iowa Register: One hundred bushels of corn will shrink to ninety in the crib, and to an extent more than that, depending on the openness of the crib and the honesty of the neighbors.

ENGLISH beef, which is largely made by feeding roots, is said not to be as nutritious as American beef, which is made from corn and grass; but the English beef is regarded as the best flavored.

A Vermonteer states that an aged horse, performing daily hard work, ate eighteen quarters of oats per day, and seemed to gain on such diet, although he had been allowed no hay or other food.

HONSERADISH yields from two to four tons per acre and sells for from 5 to 10 cents per pound. The worst drawback to its culture is the difficulty of eradicating it when once it gets a firm hold on the land.

D. A. JONES, of Beeton, Ont., had 50,000 pounds of honey on exhibition at the September meeting of the North American Beekeepers' Association, at Toronto. He is the largest apiarist in the country.

DR. RANDOLPH recently described before the Philadelphia Academy of Natural Sciences certain methods used by him in the preparation of the grain of wheat for micro-

scopical examination of its structure, and stated that his examination had proved that, while the substance of the body of the grain contained the true albuminoid food known as gluten, in addition to the starch, the so-called gluten cells of the cortex did not respond to any artificial digestion, and seem to have but little nutritive value.

It is said that if common salt be added to poultry droppings it will prevent its burning up plants when applied to them; the theory being that the great affinity of salt for moisture prevents the rapid drying of the droppings.

THE Guernsey cow "Kathleen" 38 gave in seven days, ending November 25, 393½ pounds of milk, from which were made eighteen pounds and fifteen ounces of butter. She is the property of L. W. Ledyard, of Casnovia, N. Y.

THE Tyler is one of the earliest raspberries, while the Gregg is one of the latest. There are newer varieties, however, superior in flavor and size, but for market purposes they should be selected of varieties that ripen in succession.

A HORTICULTURIST gives the following method for constructing a cheap greenhouse: For summer use oiled canvas answers, but glass can be put on at any time. Dig a pit two feet deep, six feet wide and eight feet long, and make it smooth. Wall up the sides with boards two feet long, first making a ditch or path two feet wide in the centre, which will give a shelf two feet wide on each side. The ends of the boards should be cut a little longer to give the proper pitch, which should be two feet in the centre. Take two pieces of 2x4 scantling 14 feet long, cut off six feet from each one, which will leave four pieces six feet long for the sides, and four pieces six feet long for the ends. Box up the pit from the top of the shelf to the top of the ground, leaving a space for the door. Next take four pieces of 2x4 twelve feet long, and cut rafters the proper length for the roof. When fastened to their place take four old-fashioned windows and fasten them together with strips on the sides, allowing the top caps to project over, to shed the water. The end should be banked up with earth, and on cold nights covered with hay. Make the door double.

SOME of the results of experiments made at the Ontario Agricultural College are thus summarized: "The Shorthorn is an average milker, short in duration per season, low in specific gravity, high in per cent. of cream, proportionately in butter, and also high in cheese production. The grade of this breed approaches nearest to what is called a 'general purpose cow.' The Aberdeen Poll is low in quantity of milk, and the second highest in specific gravity. The Hereford is not more prominent than the preceding in regard to milk, except in proportion of butter from cream, in which it is highest. The Devon is most distinct in highest specific gravity and the weight of cheese from milk. The Galloway milk appears to be of a peculiar texture, rich in cream, but so small in butter globules that they rise very slowly and are very indistinct in the test tube. The Ayrshire is a particularly heavy, long milker, giving five times her own weight per season. The milk is some-

what low in specific gravity and per cent. of cream, but is over the average in cheese production. The Jersey is remarkable for proportion of cream, averaging 35 per cent. and giving a value of dairy products incomparable to any other breed in our experience. The native or common cow of Ontario, not Canada properly, because (Quebec in particular) stands distinct in her class of dairy cows, takes a high place in value of annual produce for ordinary dairy purposes, and, along with the Shorthorn grade, is peculiarly the dairy cow of the country."

LEAVING THE FARM.

So, William, we must go to town, and leave the dear old place.
Your hair is gray, your form is bent, and wrinkled is your face;
And when I stand before the glass to put my collar on,
I scarce can see to pin it straight, my sight is so near gone.
The children say we're growing old, too old for such hard work;
And Daniel he will take the place—you know he's not a shirk—
And that young wife of his, I think, is smart as a queen bee;
She's light of foot, and light of heart, and good to you and me.
They're sure to keep the farm in shape, and not let things run down;
But I'm afraid I'll never be content to live in town.
You know since Mary married we've been there on and off,
And once I stayed a month or more, the spring I had that cough.
Mary was good and loving, and her husband he was kind;
But I got so tired and homesick I feared I'd lose my mind.
It wasn't lack of company—some one was always there—
You know that folks who live in town have lots of time to spare.
The church was very handy, and I liked the preacher too;
And I tended all the meetings; what else had I to do?
But oh! I longed to hear the cows come lowing down the lane,
And to hear the horses champing as they ate the golden grain;
And to hear the proud hens clucking, and the mother turkeys call—
The pleasant music of the farm, I did so miss it all
And I longed to see my garden, and the apple trees in bloom,
And to pull the clover blossoms and breathe their sweet perfume;
And, William, you'll be like me; you need not laugh or frown,
For you'll never be contented to settle down in town.
Just think about it, William, it's forty years and more
Since you and I together left old Ohio's shore.
I mind as if 'twere yesterday, my mother's tear-wet face,
The firm clasp of my father's hand, my sister's warm embrace;
And oh! I never shall forget how the prairie, wide and vast,
Stretched out before me, when you said, "Well, dear, here's home at last."
The words seemed such a mockery, where nothing looked at like home,
The very clouds seemed farther off, and higher heaven's dome.
Now as I look around me on the fields of waving corn,

The orchard and the meadow, the farm-house and the barn,

All the past come up before me, I can see the cabin small,

The little low-roofed cabin, that barely held us all,
And the lonely, lonely prairie, with not a house in sight;

Ah! the tears that wet my pillow when you thought I slept at night.

Yes, it's true we soon had neighbors; and how homelike it did seem,

When of evenings from our doorway we could see their candles gleam.

Looking 'round upon the prairie, where we watched that lonely light,

Now from many a friendly window shine the earth stars clear and bright.

But no beacon to the sailor, homeward bound upon the sea,

Ever shone with brighter luster than that twinkling light to me.

Then the children kept on coming 'till the small house overflowed,

And their childish love and laughter helped us all along our road;

How we toiled both late and early, and how through all our days,

The dear God blessed and prospered us; to Him be all the praise;

Then when we built the new house, what happy times we had,

Peace and plenty dwelt among us, and the days were short and glad—

I know we had our trials, crops would fail and sickness come,

And before death's awful presence, we have bowed in anguish dumb;

But we comforted each other, for we said, "His word is sure."

Though we walk amid the shadows, still "His promises endure."

Now the shadows are all lifted, we are in sweet "Benah land."

And His presence is about us, we can feel His guiding hand,

It is hard to leave the farm—but the children we are grown—

As we were when just we wedded, you and I are now alone.

But oh! the difference to us! then our lives had just begun,

And our life-work lay before us; now our life-work's almost done.

Why, the sun is setting, William. How fast the days go by,

See those clouds of blue and crimson lying on the western sky.

This world is very beautiful; sometimes it seems to me

I can hardly bear to leave it; and then, dear, when I see

How feeble I am getting, I feel ready quite to go.
The children do not need me, and you'll come soon I know.

Low spirited? Ah, no! I'm not. "He doeth all things well."

And happy and God fearing the children round us dwell.

And I'm ready for the flitting, like the leaves in autumn brown—

But I'm afraid we'll never be content to live in town.
—Mrs. E. V. Wilson, in *Chicago Inter-Ocean*.

CONTRIBUTIONS.

LAYING OUT ROADS.

EDITOR LANCASTER FARMER: There appeared several articles on road-making from the pen of P. S. R. in the FARMER, which, with your permission, I will make some remarks on. As he says, it is very desirable to have good roads of easy grade, and wherever

it can be done, steep ascents should be avoided, but if P. S. R. will please to consider the matter fairly, he will discover that it is a much easier matter to make good roads on paper, than it is for a jury to run them through their neighbor's farms or fields! I have served on many road views and reviews, and I know the difficulties in connection therewith.

Jury men are generally reasonable men, and naturally have a fellow-feeling for their neighbors, they do not like to run roads through a farm, cutting into all manner of shapes, or plots, that it would be difficult for a geometer to give name to all those shapes, and making the farmers' fields very inconvenient to fence and cultivate, but rather put the public in trouble to get over elevations if not too steep, the best way they can.

I might give many instances where had difficulties in laying out roads, but I will mention only a few.

One time a jury was ordered to view and lay out a new road of about three miles in length, from a mill to a point on another public road. There were three public roads centering and passing the mill, the route led us through four or five farms, nearly the whole distance through cultivated fields, cutting the farms into all shapes. At one farm we nearly had a fight between the miller and the farmer. At another place they threatened to set the dogs on us. Of course our report said—no road! We might have run from the point at the mill on a public road about half a mile, and then run to the ending point on far better ground, and the private property would not have been injured nearly so much, but there already was a public road nearly in the same direction; and the miller did not want it there, but he wanted it to start at the mill. The result was no road.

A road was petitioned for to start from a point on a public road, to run over a steep hill to a point on another public road. This was up a steep hill, where there was no objections by the owners of the ground, and through woodland that can never be cultivated, unless terraced as are some hilly vineyards in Switzerland, where they carry the fertilizers, as it were "upstairs on their shoulders." Here we could have located a road on slightly elevating ground by making a detour of three-fourths of a mile, but it was not wanted there, and the petitioner desired a short cut straight up the hill; but it will bother dogs and cats to climb it without putting out their claws to hold by. People on foot or horseback may go up and down, but hardly empty wagons or carriages. But as it was not doing damage to private property, and would be convenient for the owners of the land to get their timber down, so we gave them the road.

People travelling the road may wonder what kind of an ignorant jury could ever lay out such a road. Of course not knowing all the circumstances that influenced the jury.

The Borough of Columbia petitioned for a jury to have a street opened through a farm adjoining. This would necessitate the removal of an old building and a cut of perhaps six or eight feet close to the house was to make the street of an ordinary grade, and a street that would be used more than any in the borough,

except Locust and Front streets, the jury were all of one mind, that it was a necessity, and we all implored the owner that it would be a great pecuniary benefit to him, as he could then sell off lots at a high figure. But he had Thad Stevens at the helm and to this day has prevented the opening of the street. Though in time it will undoubtedly have to be opened. There were several views and reviews over the ground, and all reported for the street to be opened.

I might mention a number of other cases, where I was on the juries, and where great difficulties were in our way, wishing to make good roads for the public, and yet in regard to our duty as jurors not to damage private property too much for the public good.

Thus, you see friend P. S. R. and others who want good roads, that it is not such an easy matter to make good roads through your neighbor's private property, as it is to make them on paper.—*J. B. G.*

THE "PEACH SCAB."

HARRISBURG, Feb. 14th, 1884.

DEAR SIR: I find this *scab* on peach trees in our city; also this one on the rose-wood. Mr. Stitzel, of Reading, stated in our late horticultural meeting that they were numerous in Reading, and he brought some infested twigs with him. No person knowing of it but myself I went out where I found it last year, and found it there again. What is it? Governor Pattison is interested in it, so please answer me and oblige yours, &c.—*T. A. Woods, 915 Sixth street.*

P. S. Does it increase fast, and how? Please answer soon.—*T. A. W. Narsersgymna.*

At no period more frequently than during the past autumn and present winter have we received branches of the peach tree infested with the "scab" referred to in the above note of inquiry, and at no time were said branches more numerously infested. From Reading, from Columbia, from Marietta, from Litzitz, from Mount Joy, and elsewhere, and now from Harrisburg. They are also abundant in some localities in and about Lancaster city.

The peach twig sent us by the writer of the above was infested by the "peach scab," (or scale) namely, the *Lecanium persicum*, an insect that belongs to the Coccid family (*Coccidae*). If the sample he sent us is one of his worst ones then we have still room to congratulate him, for it was not one-fifth as badly infested as some brought to us by our neighbors in Lancaster city. Some of these insects are invulnerable to the application of remedies that readily destroy other insects. These scales are very convex—almost hemispherical—and of a light, or chestnut-brown color, and those found on the trees now are the dead bodies of the females of last season. The whole internal cavity is usually filled with eggs, which at a later season will become more distinctly visible than they are in the month of February—sometimes to the number of two or three hundred under one scale. These eggs become incubated in the end or during the month of June, or later, according to the temperature of the weather, and the young come forth in millions and scatter over the branches, especially on the new and tender wood. If a drenching shower

of rain happens at the time, millions are washed off and perish. This suggests that if the trees were artificially drenched at the proper time the effect would be the same. But the young are almost microscopic, and cannot be seen at all when the trees are in foliage; it would therefore be better to attend to them *now*, while the branches are naked. But drenching would be of very little effect *now*; the scales are impervious to liquid remedies; no degree of cold or moisture seem to effect them in their present embryotic condition. On examining them we find they possess the germs of vitality—we doubt whether 25 below zero would have killed them. Therefore, where the trees are only of medium size, accessible to approach, and the variety worth preserving, we would recommend the use of a stiff-bristled brush, about the flexibility of a good hair-brush, or tooth-brush, dipped into a solution of whale-oil soap, or other alkalionic compound, and a brisk manipulation of said brush wherever the scales are located; and the work should be general and thorough for the escape of a single scale may involve the existence of one or two hundred insects next summer. The young insects are very minute, and are slow travelers, but the winds waft them from branch to branch, and from tree to tree. When the young are excluded from the eggs they travel for the tender new wood; they seldom attack the leaves; sometimes a few are found on the midribs, but this is their mistake, for when the leaves fall, they of course perish. When they find a favorable locality they pierce the twigs with their probosces and immediately commence to pump out the vital juices and depletion and emaciation follow in proportion to their numbers. The young insects are of a whitish color, have six feet, two *antennae* on the head, very dark eyes, and two terminal bristles attached to the posterior end of the body. Towards autumn they become degraded, and divest themselves of their antennae, feet and setae, and then rapidly become a scale, with no appendage but the *rostrum* or probosces. The males are winged, and after they impregnate the females, they fly off or are blown off—in any event, they soon perish, and none of them survive the season.

Perhaps the most prolific species of *Lecanium* is the one that infests the oak. Last year we bred many millions of these from two or three oak-twigs, aggregating about two feet in length.

When trees are too large for the manipulation of a brush, all the infested twigs should be cut off and burnt—even if it should involve a whole branch, or a whole tree; and, whatever is done, should be done *by all*, who know their trees infested.

The "Rose-twig" inclosed in the above note, contained no Leranians when we received it. The oblong, flat, and greyish object which was firmly fastened to the bark, was the egg of a species of *Phloeophora*—a slender green grasshopper, allied to the "Katy-did," (*Phyllium convexum*) if it was not the latter itself. It is difficult to determine species from a single isolated egg, especially when none are accessible for comparison. Some of these insects deposit from 25 to 50 eggs at a time, and although there is some distinction in the form of them, yet the differentiation is greater

in the mechanical arrangement. Moreover, these insects never become destructively numerous. When they are young and feeble, they are conspicuous objects to insectivorous birds, being delicate in structure and very tender; out of fifty, perhaps not more than half a dozen reach maturity. They generally feed on the foliage of trees and shrubbery.

There are, however, some individuals in the family (GRYLLIDÆ) that are pernicious pests, notably the "snow-cricket" or "tree-cricket," (*Euschelus viridis*) which frequently occupies itself in cutting off the clusters of grapes where they are yet green. Of late years this insect has also become a "tobacco-chewer," and has considerably annoyed the tobacco-growers of Lancaster county.

IS WHEAT A PAYING CROP?

What is the king of the cereals. Unbolted wheat flour is said by chemists to contain the elements of nutrition in more nearly the proper proportions than any other article of food in extensive use. The common consent of civilized man the world over places it at the head of grain foods. It is truly called the "Staff of Life." The average yearly allowance for each person is put at four and three-fourths bushels. At present prices of wheat the average cost of each person's bread, or rather the raw material out of which his bread is made, is about one and one-third cents per day. This does not seem an extravagant price to pay for the material out of which our brain and bone and muscle are elaborated, and would not seem exorbitant at two cents per day, and yet the city papers keep up an everlasting outcry for cheap bread. It would be a relief to their readers if the papers would sometimes raise a clamor for cheap meat or cheap butter or cheap potatoes by way of variety.

The fact is that wheat at present prices is the cheapest commodity on the face of the earth. Matches at a cent a box, or muslin at six cents per yard are extravagantly high in comparison to it. The Oleo soap-grease butter and "suené" that the New Yorker spreads his bread with costs more than the bread itself. I have never heard smokers demand cheap cigars, although tobacco costs the people of this nation more money than their bread.

With the exception, perhaps, of tobacco, wheat is the most exhaustive on the land of any crop grown by the farmer. The fact that it is the most nutritious of grains is proof enough of this and the rapid deterioration of the soil in grain growing sections confirms it. The question naturally arises whether it is worth while to impoverish our land, raising wheat and go begging to Europe with our surplus crop at about one dollar per bushel. It certainly does not pay us here in the East to export the fat of our land for such a miserable pittance. It is generally thought that the great northwest where the first cost of the land is less than the fertilizer we apply here, can place wheat at the seaboard cheaper than we can, and perhaps it can, but it is doubtful if even they can grow wheat for 60 or 65 cents per bushel, the present price in Manitoba. The winters are long and severe, and wheat is about the only saleable crop they can raise. Labor is high and machinery expensive.

Under the present exhaustive system of cropping the land will deteriorate until it will have to be abandoned. A great deal is said and written about the destruction of the forests. The exportation of the products of the virgin soils of the west at prices that will never afford the farmer the means replenishing the fertility of his exhausted acres, also merits our consideration.—*J. C. Liville.*

ESSAYS.

*LABOR SAVING FARM IMPLEMENTS.

If times is money, and a penny saved is a penny earned, then the question must be answered in the affirmative: *Provident*, the cost of the machine does not exceed its benefits; and *provident*, also, that good use is made of the time saved.

Without entering into a discussion of the question now agitated between learned doctors and evolutionists, whether man was created a civilized being, and retrograded into barbarism, or was originally a savage and has gradually *evolved* into a civilized condition, one thing seems certain: that the improvement and multiplication of labor saving machinery is one of the best evidences of the progress of a people in the march of civilization. The two appear to go together. In proof of this we need only contrast the condition of savage nations and their rude implements and want of machinery with our own condition in life and the machinery of the present day.

The inventive brain of scientific civilized man has more than quadrupled the power of his hands, and placed him, as it were, at the long end of the Archimedian lever that moves the world. Distant places have been brought near, and time almost annihilated.

By the use of machinery the farmer gains in several ways. He can work more quickly and often save crops that otherwise would be lost in unfavorable weather. He can do his work better and in less time, thereby saving many precious days and hours which may be employed by himself and family in still further qualifying themselves to manage their affairs intelligently and profitably, and in educating themselves morally and mentally up to a higher standard of true manhood and womanhood.

The time thus saved becomes so much capital, to be used or thrown away. As a general rule our farmers have largely profited thereby. That in some few instances good use has not been made of it is the fault of the individual and not of the machine, and if any mischief is done, it must be attributed more to outside evil influence than to anything arising among the farmers themselves, who, as a class, have always been a quiet and sensible people.

When leading men in the society of our cities, who should set a better example, condescend to dance at balls, disguised as horses, as they did not long ago in New York; and when in Pennsylvania, it is getting to be a common thing, since the old law against it has been repealed, for highly respectable people to attend night masquerades, with their faces concealed under masks, as was the custom in the most corrupt and dissolute periods of

France and Italy—when these performances are published approvingly by the newspapers, and are no longer denounced from the pulpits, it is easy to see whether we are drifting, and no wonder that some of the virus should have reached even our quiet farm homes and turned some heads there.

It does not necessarily follow that because the whole of summer is no longer needed to sow and harvest, and the entire winter taken up in threshing out the crops, that the farmer should turn loafers the rest of the year, nor that his sons should become idle drones, hating work; or his daughters giddy butterflies of fashion; and together, like moths and caterpillars of extravagance, consume what honest industry may gather, or self-denying rugguity may have saved.

There still remains enough for all of them to do on a well conducted farm, and that of the most pleasant and healthful kind of work and recreation. We have space to mention only a few of the many things that require attention. The capacity of the soil and the effect of different fertilizers, the nature of the crops, the diseases of trees and plants, the disposition and management of domestic animals are still to be studied. The habits of the birds and insects ought to be observed, so that the useful may be protected and the noxious exterminated. The farming implements are still to be looked after and kept clean and bright. The farm buildings, particularly the house, are to be made more healthy and attractive by proper drainage and ventilation, and their surroundings beautified by judicious planting and pruning. Constant vigilance is now more than ever the price of success with the farmer, and time need not hang heavy on his hands or mind. A garden for the cultivation of small fruit should be kept in addition to the one for vegetables. A modest library of useful books on subjects of farm and garden should be gradually got together, and books for pleasant reading on rural matters, such as can now be had from the pens of our best authors, ought to be added to satisfy the cravings of the minds of the young, which demand food, and keep them from stultifying themselves with sensational literature, or rushing to other and more exciting pursuits in life.

It seems to have become one of the great mistakes of modern times to suppose that an educated person, or a youth who has acquired a smattering of college learning, should be above the cultivation of the soil, and that farmers are without honor.

Some of our most learned and best men have delighted in agriculture; and those who have by long and skillful experiment given us new and better varieties of fruits and grains—who by patient and intelligent investigation have discovered means by which the products of the soil have been increased, and the failures lessened—or, who by inventing machinery have lifted part of the burdens from the shoulders of the laborers in the field, as our first benefactors, and deserve as high a place in our esteem and gratitude as those who

*I have heard received many valuable suggestions from learned men in times past, and scores have often unlocked secrets for the agriculturist that his own untutored efforts failed to discover. A recent paper of Prof. D. P. Pondhouse on "Teach Yellow," in 2122 quarterly report of the Pennsylvania Board of Agriculture, 1883, may be cited as a case in point.

successfully guided the councils of state or led our armies to victory.

Why should any one that has means decline to become a farmer. The earth, with which he has to deal, is no ungenerous mother. She interests us by a circle of changes each year—she mauntes herself in green, and wreaths her face in smiles of golden harvests, responsive to the labors of the husbandman—she proffers fruit and blossoms to all who care to enjoy them—she even hangs the luscious berries upon the despised briars—she is forced to bear for man's transgressions, that he may pluck and eat.

There is a charm connected with country life that clings to the memory of those who have once tasted it, it can never be shaken off. There is no fruit so tempting as that which we shook down in the old orchard—no draught so cooling as that from the oaken bucket at the old well. Men, when they have become satiated with worldly success or weary of its disappointments, delight to return to the quiet shades of the farm. Slithering old age longs for the sunny corner in the country home, and poor worn out humanity lies down to die "a babbling of green fields."

Why then should we not delight to be farmers, and why not also allow our friends, the inventors, to participate in our monthly meetings. Let them be invited to come and bring with them and exhibit their implements and machinery or models of them, and samples of fertilizers. The examination here will disclose the merits of such as are worthy of patronage, and it may warn our friends against being imposed upon by such as are worthless. It will add to the interest of our meetings and insure to the benefit of all.

SELECTIONS.

SUPERPHOSPHATE.

To prepare superphosphates on the farm provide one or more good hogsheds, or large troughs, fill them not more than one-third full of lime, ground bone, the finer it is the better will be the phosphate; moisten the bone with water to the extent of about twenty pounds of water to 120 pounds of bone; then slowly add to above sixty pounds of sulphuric acid, 65 per cent. purity. This had better be put in at three different times of some hours apart, than to be all put in at once. A considerable heat will develop by the action of the acid upon the lime in the bone, and it is better to keep covered with blankets to retain this heat as long as possible. If the bone is very greasy a smaller amount of acid will suffice. By evaporation the 200 pounds will be reduced to about 150 pounds. It should be well stirred several times while making. This mixture will probably be too damp and sticky to use, and will need something to dry it. For this purpose add twenty pounds of fine bone charcoal, plaster or dry earth. The first named is the best, as it will take up the excess of acid, if there should be any, and it does not reduce the percentage of phosphoric acid in the mixture, as the other mixtures will. The result will be the article usually sold under the name of plain superphosphate, dissolved bone or acid phosphate (though that usually sold under the latter name is most frequently made from South

*Read before the Lancaster County Agricultural and Horticultural Society, February 4, 1884, by S. P. Lloyd.

Carolina phosphate—rock which cost less than bone). It contains a large percentage of phosphoric acid and some ammonia, the latter varying according to the amount of grease or other animal matter in the bone. If it is desired to make such phosphate as is usually sold by reliable manufacturers under that name, and such as gets a good report from our State chemists, take about 1400 pounds of the dissolved bone, and add about 500 pounds of dried fish or dried blood and 120 pounds of muriate of potash. The amount of fish or blood will vary with its strength and the moisture it contains, but the above mixture will result in a phosphate containing from 8 to 10 per cent. phosphoric acid, 3 to 4 ammonia and 3 per cent. potash. Alkaline bone, so-called, is simply the bone (either raw or dissolved,) mixed with German potash salts. The cost can be computed from the prices now given in the market for the various materials, which are nearly as follows, including freight to the farmers: Fine ground bone, about \$40 per ton; sulphuric acid, 1½ cents per pound; fish and blood, \$35 to \$40 per ton; muriate of potash, 2½ cents per pound. The cost per ton may be cheapened by extending with plaster or earth, but it will also reduce the strength.—*American Cultivator*.

HOW TO CLEAN STUMP LANDS.

A correspondent of the *Ohio Cultivator* tells how he gets rid of the stumps as follows: "Last spring I sent to Indiana and hired a man to come and blast out stumps. I paid 4½ cents a pound for the powder, and 15 cents for each stump taken out, he to furnish caps and fuse. The stumps were mostly white and burr oak, from 20 to 40 inches in diameter, and had been cut from six to twelve years. Sixty-seven of the worst were taken out at an expense of 68 cents per stump. There were only three or four failures in the whole lot. As they were blown into pieces, it was much less work to pile and burn them than when taken out in the ordinary way. I bought material and took out nearly 200 smaller stumps at an expense of about 20 cents each. It took me ten or fifteen minutes to prepare a blast. I used a 2 inch auger on a 5 foot shaft for boring under the stump. A crow-bar will do in soft ground; those who follow the business use 2½ inch auger. The charge should be put as nearly under the centre of the stump as possible. It is not very dangerous to use, as fire will not explode it. The cap is placed in the cartridge and is connected by a fuse. You light the fuse which in one or two minutes explodes the cap; The concussion of the cap, which is equal to 500 pounds, explodes the dynamite, or Hercules powder. Eight or ten rods is a safe distance if you are lighting the stump, for you can easily dodge chunks, if any come toward you. It will not pay to use it very extensively on green stumps, as it will take from six to eight pounds per stump, and will not give very good satisfaction at that."

IMPROVEMENT OF VEGETABLES.

But for the continued efforts of enterprising seedsmen and horticulturists our vegetables would gradually deteriorate and revert to the original varieties from which they were

produced. Farmers and gardeners who do not make a speciality of improvement can form no estimate of the time, patience, care and labor required in the production of a new variety, nor of the numerous failures that occur before the variety is deemed worthy of a place among others.

The tomato, which nearly rivals the apple in smoothness and firmness, was almost despised half a century ago; but the Trophies, Acemes, Perfections and Paragons of to-day are esteemed as the most valuable of our garden vegetables. Mr. Livingston, who gave us the Acme, Paragon and Perfection, began his work of improvement thirty years ago, and, after selecting seed from the choicest for ten years, was but little nearer the accomplishment of his purpose than when he began; but he did not despair and made new experiments, finally determining to select his seed from the smallest but best formed and smoothest specimens. He was led to adopt this plan by observing that the small specimens were uniformly of better quality than the larger. Having gained quality he gradually increased the size, and with one good variety as a foundation he had less difficulty in originating others. He was compelled to grow his tomatoes at a distance from inferior kinds, for a large number of failures arise from overlooking this precaution in saving seeds. The efforts of Mr. Livingston extended over a period of thirty years, and yet the value of his efforts to the farmers and gardeners cannot be estimated. Had every farmer been as determined as he in perfecting crops of vegetables and fruits the value of our agricultural productions at present could not be computed.

The value of the wheat crop of this country has been increased millions of dollars by the patient selection of a few choice heads of wheat annually by Mr. Fultz, of Lancaster county, Pa.—not that the Fultz wheat is at present more extensively cultivated than any other, but it opened a new era in wheat selection and improvement, and laid the foundation upon which our varieties of wheat have been elevated to the highest standard of excellence and prolificness. In like manner the careful selection of seed corn has made possible the heavy yield of 100 bushels or more per acre.

Gregory, with his close and constant attention to the work of vegetable improvement, gave us the Hubbard squash and Marblehead cabbage, while Rogers, with his annual new varieties of grapes, and Goodrich, with his experiments at potato improvement, have been of invaluable service to the country. Lawton, with so insignificant a fruit as was the blackberry at the time he began his experiments, opened a new field in fruit growing. Had it not been for patient and persistent efforts, after many discouragements, we would not to-day possess the Bartlett pear, Crawford peach, Concord grape, nor Sharpless strawberry. The Acme, Paragon, and Trophy tomatoes would be unknown but for careful selection, and we would have no Early Rose, Peachblow, Snowflake and Peerless potatoes but for repeated and persistent experiments.

Every farmer is in duty bound to perform his share of the work of improvement. If each would strive to make his crops superior

by care and judgment in selection, the chances of better varieties would be increased in proportion, with the advantage in their favor of what may be termed the "chance success" of discovering a vegetable here and there far superior to any others known. A wide field is open to farmers in this direction.—*Philad. Record*.

RUST IN WHEAT.

Rust is one of the most formidable enemies the grain farmer has to contend with in wet and muggy seasons. Warmth and moisture favor its development. In seasons alike in their heat, rainfall and humidity, the dust is not equally damaging. It breaks out in what appears a capricious manner. A drenching rain is sometimes followed by less rust than that which appears after a slight shower or even a heavy dew. There are antecedent conditions which largely determine the degree of liability to rust. The microscopic spores of the fungus known as rust float about in the air awaiting favorable opportunities for development, and when they meet circumstances of the proper kind they multiply with astonishing rapidity. During moist hot weather, the sap vessels of the plant become ruptured and fungoid germs attach themselves readily. If the plants, some scientists think, are healthy and vigorous, they resist the attempts of the parasite to establish itself, much as healthy animals refuse to become the abode of parasites which thrive on their weaker fellows. Anything, therefore, which weakens the vitality of the wheat plant renders it liable to become the prey of rust. Exhaustion or food elements in the soil, the presence about the roots of sour, stagnant water, sown too late in the fall for proper development to resist the winter, are among common and easily preventable causes that predispose to rust. Of nonpreventable causes, hard winters and cold, backward springs, which prevent the healthy development of the wheat plant, are among the most prominent—next, of course, to warmth and moisture. These conditions have existed this year, as they did in 1876, when the damage from rust was widespread and very serious. Fortunately, mild and weevil were not among the pests of last summer, as they were in that unfortunate season. "What cannot be cured must be endured," but the causes which can be reached should not be suffered to exist. Good farming in the broadest sense of the term, which includes proper selection of lands for the different crops, proper preparation of the soil and proper culture, is the best preventive of serious damage from rust.—*Mechanical World*.

TRUENESS OF BREEDING.

The property for which wool is perhaps most valued is truthness of breeding. In a true-bred sheep each staple of wool, that is, each lock into which a group of fibres naturally forms itself—will be of equal growth throughout. The fibre will be the same thickness as nearly as possible the whole length, or will be finer at the point than at the root. There will be no shaggy rough wool in it; but if the sheep be cross-bred, or ill-kept and exposed to storms, the fibres will be rough at the points and coarser than at the roots, the reason of this being that as the wool gets

longer, or as it is more exposed to bad weather and hard treatment, nature makes it stronger to resist what it has to encounter, while the part which is next the skin remains fine to give greater warmth. Such wool, even when combed and spun into yarn, never lies smooth and evenly as true-bred wool, and is consequently not of as much value. There is another sort of wool which farmers do not seem to understand, and writers on the subject often ignore, but which is found more or less on all cross-bred sheep and on sheep which are too much exposed and fed on hilly districts. This is known as "kemp," or dead hairs. These kemps vary in length and coarseness according to the breed of sheep. In white Highland they are about two inches long and very thick; in cross-bred Australian they are very short. In the former they cover the under side of the fleece; in the latter they are so few as to not be of any importance. They are, however, all alike in this, that they are a brilliant shining white (except on sheep with grey wool, when they may be black), and they will not dye the same color as the rest of the wool. They consequently depreciate the value of the wool very greatly, making it only suitable for low goods.—*London Live-Stock Journal*.

THE RED ANT.

Formica rufa is a large red ant, very common in England and in Europe, where its mounds are often conspicuous objects in the fields. A variety of the same species occurs upon the Western plains, where it extends even to the elevation of Leadville, 11,300 feet above the sea. The correspondence of Dr. H. C. McCook with Dr. Puy, of Dakota has proved the presence of this species in that Territory, and examination of the mounds shows some peculiarities of construction. The entire mound is formed of a mixture of small twigs and earth, and in its centre is a ball of twigs about eight inches in diameter, doubtless serving as a nursery for the eggs and larvae. The nursing and protection of the young is the centre upon which hinges the whole economy of a formicary (or ant city). In the mounds of some other ants there are many series of galleries, and the young are removed to greater depths when the frosts are severe. In the present case the material employed is a protection against frost, but the ants themselves were found to have retired to greater depths. Six or seven galleries leading downward from the nursery were followed to a depth of four and a half feet without reaching their termination. Although these ants are thus well able to protect themselves from the severe weather of the region they inhabit, the material employed renders them peculiarly liable to destruction by the prairie fires, which burn out the vegetable matter of the mounds and make holes large enough to hold a bushel basket. A tall, succulent species of grass, which usually flourishes around the edge of the clearing made by the ants, often protects them from fires.

A WEB-SPINNING INSECT.

Dr. H. C. McCook recently reported to the Philadelphia Academy of Natural Sciences the discovery upon the Wissahickon of an example of the curious web-spinning insect, *Psocus*

country. The *Psocus* is the only insect that is known to spin a web while in the imago or perfect stage, and is exceedingly interesting as exhibiting in the imago a habit which is common among larval insects (in making their cocoons) and general among the related spiders. The fact that the order of insects, *Neuroptera*, to which *Psocus* belongs, is the lowest insect order, was mentioned by the speaker. The writer of this ventures to add that all evolutionists will believe that the web-spinning habits of this genus of insects, of the larval butterfly, or moth, and of the spiders, point backward to a remote common ancestor. There is enough in common between insect sand spiders, excluding this habit, to lead students of morphology and embryology to the belief that the two classes are descended from the same original stock.

WHERE DO HOUSEFLIES COME FROM?

It is a prevalent idea that houseflies especially abound in the neighborhood of stables, and it has often been stated that the housefly lays its eggs in the compost of such places. Exact observations seem, however, to be scarce, and it is, therefore, interesting to know that Dr. Joseph Leidy has put on record that he observed the swarming of these pests from the compost heap of a stable, and moreover, found that the flies were infested with a brown mite.

THE CANKER WORM.

Those who have orchards in localities where the canker worm has made its appearance in years past, should improve the first good weather after the snow is gone to protect their trees. If "Tree Protectors," have already been used, a careful examination should be made to see that there is no open cavity between the protector and the tree, where the grub can find a passage-way up the tree; if any are found, they should be well filled up. The troughs should be well cleaned out and examined to ascertain if any defect exists, if not, they should be filled with oil. If the protectors are well put on, and properly filled with oil, but little more is necessary, except to see that the troughs are kept filled with oil, and that during the best of the season enough grubs do not get in to form a bridge over which the grubs may pass.

If no protectors have been put on and the orchardist feels that he cannot afford to buy them, some other means should be used to protect the trees, which does not require so large an outlay of money. Tanned paper on the trunk, kept covered with some sticky substance is a protection which requires but little outlay of money, but considerable time which to some would be of little value, while to others would be more than the cost of patent protectors. Each orchardist must decide for himself what is best for his particular interest. If he decides to use the tanned paper he should remove all rough bark from the trunk of the tree where the paper is to be placed, that it may set close to the tree, to prevent the grubs from passing up between the paper and the tree. The strips of paper should be ten or twelve inches wide, and may be tacked on the tree with tacks that have large heads, or tied with two strings, one at *punctatus*, not before known to occur in this

the top and the other at the bottom of the paper. "Tree Ink" is largely used to cover the paper with, but some insist that there are much better substances, such as the residuum of kerosene, or a preparation made of rosin and linsed oil, four parts of the former to one of the latter, slightly varying in proportions as the weather is cold or warm. Whatever substances are used should be renewed as often as they harden so the grub can pass over.

The orchard should be examined every day after the ground begins to thaw until the buds begin to break, and as often as necessary, the paper should be covered with fresh material; sometimes the neglect of a single day will permit grubs enough to pass up to seriously injure the crop of fruit.

SOME HABITS OF SPIDERS.

Spiders are highly carnivorous creatures, yet Mr. Meehan recently observed some of these insects sucking grape-juice, and Dr. McCook noted a couple of phalangiums (harvestmen, Daddy Long Legs) feeding upon the juices of a pear. Such a variation from the usual habit has been observed even in mosquitoes, which have by Mr. McCook been seen to suck the sweet juices of plants. The need of liquid in some form may be the occasion of the habit. Rev. Dr. McCook recently exhibited to the Philadelphia Academy of Natural Sciences a perfect example of the architectural skill of *Attus opifex*, a California spider. The nest, which was of an irregular oval form, about two inches long by one inch broad, and contained its owner, had been fortunately so placed on a branch of a species of *Artemisia*, or sage brush, that it was preserved intact. The leaves of this plant are very small, and shrink but little in drying, a circumstance which preserved the nest placed among them from the destruction wrought upon the nests of kindred species in Pennsylvania by the shrinkage of the leaves to which they are attached. *Attus opifex* does not weave an orb web, but belongs to a tribe of spiders known as saltigrades or hunting spiders. The nest is a domicile for its owner, and contains, attached to one of its sides, a double-convex concave filled with eggs. Some young spiders which had escaped from this were about an eighth of an inch long, and resembled their mother, but were less gray. The example exhibited was composed of thickly-woven sheeted silk, and surrounded with a maze of fine silken lines. A circular hole at the bottom serves for entrance and exit.

A PECULIAR FISH.

Some of the readers of *The Record* may recollect that, several months past, mention was made of a singular elongated fish with a mouth which, compared with the body, may be truly called enormous. The fish was dredged off the coast of Morocco by the French exploring vessel *Le Travailleur*, and was named by Vaillant *Eurypharynx ptelecanoides*. The pelican part of this name alluded to the pouch between the long jaws, which were produced backward, so that the distance from their posterior end to the tip of the snout was about three and a half times the length of the skull.

As a curiosity this animal has now been put on the background by a fish, several examples of which have been dredged, at depths varying from 500 to 2000 fathoms, off the coast of Massachusetts, by the vessel of the United States Fish Commission. This fish, as described before the Philadelphia Academy of Natural Sciences by Mr. J. A. Ryder, has jaws about seven times the length of the head, which is half an inch long and of about equal width. The upper jaw is suspended from the anterior portion of the body by an extensible membrane, while from the lower portion hangs a capacious pouch. A lateral extension of two inches is permitted by the articulation of the jaws. Thus the mouth, when wide open, forms a capacious funnel, of which the rest of the body seems an insignificant continuation. This funnel serves for the collection and storage of food, and probably some of the stages of digestion are carried on within it.

The gills are placed a long distance behind the head, the bones of the operculum or gill-cover are entirely absent, and the gill openings are reduced to mere pores. The tail is a long, slender, flexible continuation of the body, and near its tip is a fine composed of membrane only, without the bony or cartilaginous rays present in most fishes. In this respect this fish is like an embryo fish. The eggs from the ovary into the alimentary canal, as in the eels, to which this fish is more nearly allied than it is to other tribes of fishes, though still in some respects well removed from them, having characters some of which show high specialization, while others are embryonic. The inside of the mouth and throat, as well as the outer skin, is jet black. Many drop-sea animals are deprived of sight, but in this species the eyes are functional.

Dr. Gill has proposed for this strange fish the name of *Gastrostomus baridi*, which, translated into the vernacular, means Baird's belly-mouth.

INDIAN CORN—ITS VALUE IN THE RATION.

Corn is so rich in oil that we may say corn bread is ready buttered; it is, however, very digestible, and in cold weather this oiliness is a most valuable factor, as it serves to keep up the heat of the body more directly than starch and similar substances. With oats and barley it may form one third of the grain ration of hard-worked draft horses, and will keep their coats glossy and be in every way a benefit, certainly worth more than its weight in oats. Fed alone or in larger proportion, it has a tendency to make horses sweat easily, and, it is said to become quickly exhausted. It is not safe to feed it as freely as oats or barley, as there is danger of impaction and—just as there would be if wheat were so fed. No doubt it is best fed ground with oats, and the proportions already indicated are probably the most satisfactory, the meal being fed upon cut hay.

For Cows in milk, corn meal may form with bran the exclusive grain ration, and may be fed at the rate of one pint of corn meal to each hundred pounds of the cow's live weight. No doubt it will be found just as good in Great Britain as here. It gives quality and richness to the milk, color to the butter and

abundance to the flow if the cow is a good one; but if she is inclined to lay on fat, such feeding will cause her to fatten, even though in full milk, and if she gets too fat she will go dry.

For sheep, corn is excellent, but should be fed whole and a little at a time. For swine, the universal experience from Maine to Oregon, and from Canada to Mexico, is that it will make more and better pork than any other food. For poultry, it is in this country the universal grain, but is not always the best. It is admirable for its fattening properties, but for laying hens, and growing fowls, it is not well to use too much. "Corn fed" fowls, ducks and geese are firm fleshed and yet tender. They bear transportation alive with little shrinkage. True yellow corn makes yellow butter and yellow fat in fowls. English and French taste demands white-fleshed poultry with pale, lardy fat, and so they fatten poultry on rice, and their fancy market fowls have about as much flavor as boiled rice. The American market demands yellow-fleshed fowls, with fat as yellow as June butter, and corn is the food to produce this in all poultry.

SPREADING MANURE.

Thorough pulverization and even spreading of manure are necessary to secure its full effects. Not only is this necessary for top-dressing, but when it is to be ploughed in. Many inert substances used in stables and manure heaps act only as dividers of the manure, facilitating its wide spreading. Sand is often used for bedding in stables, and can have little value otherwise. Sawdust and tan bark when dry act also as absorbents of the liquids that would otherwise run to waste. Dry muck, fine charcoal and wood dust act chemically as absorbents as well as physically. They also, in addition to their own value as a mulch and as manure, extend the quantity of the manure, and thus favor its even distribution. The dropping of manure in small heaps to be afterwards spread is often justified by the greater ease and perfection with which it can be spread after the action of frost. The scrapings of the hog-pen or barnyard are often puddled like mortar by the treading of animals, and would spread like putty; after freezing it is thoroughly disintegrated and crumbles to powder.

I do not know of any agricultural operation that is more often slighted than this of spreading manure. Spread it evenly and for top dressing follow with a Thomas smoothing harrow or a sharp fine bush.

The claims of the Kemp Manure spreader to double the value of the manure over that as ordinarily spread by hand (I quote from memory) do not seem to me unreasonable. A year's trial has proved very satisfactory. It has spread everything that we have tried—straw, horse manure, barnyard, mud and fresh cow manure, come out all right. We have yet to try long rye straw in the horse manure with no fermentation, and long corn-stalks in the stable and yard manure. The disadvantages in its use are its weight, if manure is to be drawn far, its small loads and the difficulty of getting about in the barnyards for the manure, as compared with a common ox cart. Neither can it spread

in frozen manure. Draw the manure to the field and place it in large heaps. It is benefited by the turning and mixing, and after reloading the spreading is nothing except to the team. I have spread, perhaps, half my manure with it for the past year, and with some changes in my arrangements, shall use it more in the future.—*T. S. Field in N. E. Homestead.*

A BEETLE PARASITIC ON THE BEAVER.

At a recent meeting of the Philadelphia Academy of Natural Sciences Dr. Horn exhibited specimens of a curious beetle taken from the bodies of beavers living at the mouth of the Rhone. The first example of this beetle, and the one from which the species was described, came from an American beaver kept at Amsterdam. The species had therefore been credited to America, yet strangely enough, does not appear to have ever been collected there. The attendant at the Zoological Gardens, this city, had stated that when a beaver which had been kept there died he saw a number of black objects escape from the skin, but he had caught none of them.

The beaver of Europe and that of America are now considered the same species, and it is probable that their beetle parasite has also continued with little or no change.

DISTRIBUTION OF THE OCCIDENT ANT.

The occident ant, a large species, which was first discovered in the far West, and the habits of which have been investigated, has been ascertained to extend eastward as far as the Missouri in Dakota, but does not appear to pass that river. In Missouri the same state of things occurs, and it is absent in Eastern, though abundant in Western, Nebraska. In Kansas it does not occur further east than Brookville. Among the debris collected from the nest of this harvesting species were some uric acid pods of the leguminous plant, *Pisum oleraceoides*, which is abundant in the region. These were the refuse of the harvest, thrown out among the rubbish after the ripe pods were eaten.

PARASITIC ENEMIES OF SPIDERS AND SPIDERS' EGGS.

Rev. Dr. H. C. McCook, whose observations upon spiders and ants have added so much to our knowledge of the physiology of these creatures, as well as of the conditions which surround them, stated at a recent meeting of the Philadelphia Academy of Natural Sciences that he had noted upon the cocoon of the large gayly colored orb-weaving spider, known as, *Aryiope riparia*, a number of perforations, through which he at first supposed the young might have escaped.

On examination it was found that the upper portion of the spider sac was filled with living young, but that the lower portion was infested by the cocoons of an ichneumon fly, known as *Pezomachus gracilis*. These smaller cocoons were in their turn infested by a still smaller insect, belonging to the family chalcididae, small four-winged flies, parasitic on the eggs and cocoons of other insects.

Still more remarkable was the state of

things observed in a cocoon taken near San Francisco, Cal., and composed of a fine blackish silk. The large, jet-black spider that was collected close to this cocoon was probably its owner, and had been named *Epeira atalpa*. In this case, as in that of *A. riparia*, the lower portion of the cocoon contained a number of cocoons of ichneumon flies. On these chalcidians were parasitism was carried further still by the presence of smaller chalcids parasite on the larger ones. The tenacity of the nest was completed by the presence of several larvae of a small beetle, and two or three active ants of the genus *Solenopsis*. In this case a considerable colony of young had survived the ravages of the ichneumon larvae, but this was not always the case, as the speaker had found the cocoon of a later grade spider entirely occupied with those of the parasites.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The Agricultural Society of the county met steadily on Monday afternoon, February 4, in their room in the City Hall.

The following members were present: S. P. Ely, C. A. Gast, J. M. Johnson, F. R. Dillenderfer, Israel L. Landis of this city, and Henry M. Engle, Marietta; Johnson Miller, Warwick; Joseph F. Witmer, Paradise; C. L. Hunsicker, Manheim; Casper Hiller, Conestoga; John C. Linville, Salisbury; Levi S. Reist, Manheim; Calvin Cooper, Bird-in-Hand; John H. Landis, Manor.

In the absence of the President, Vice President Engle took the chair.

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

Crop Reports.

Mr. Hiller said some persons apprehend the compact covering of snow will harm the wheat, but as the ground is open the thawing snow will find its way into the ground and do no harm. In Conestoga township the peach crop is all right, the thermometer not having fallen below zero.

John C. Linville did not believe the wheat was injured. He never saw so much damage done by mice as during the present winter. They seem to have injured all trees less than four inches in diameter. He also feared they have hurt the clover.

Israel L. Landis believed the winter was favorable to the wheat crop.

Johnson Miller reported the thermometer was 15 degrees below zero at one time. The tobacco is being rapidly stripped; cattle have been doing well.

H. M. Engle also said the mice had done much damage both on trees and clover. Peaches are entirely destroyed in his neighborhood. The cold and hear frost coming on the same day did the work.

S. P. Ely, Esq., read an interesting paper on Labor-Saving Farm Implements. (See page 24 of this number of the FARMER.)

L. L. Landis commenced the essay and moved a vote of thanks to the essayist, which was given.

Casper Hiller thought the essay was timely and hit the nail on the head.

John C. Linville believed inventors should be allowed to exhibit their machinery. He believed such exhibits would be of value and interest.

H. M. Engle thought that if such machines and inventions did not take up too much of the time of the society they should be allowed.

The opinion seemed to be general that exhibits all kinds of farm implements and machinery should be encouraged.

Calvin Cooper thought it would, perhaps, be judicious to make some provision in the by-laws allowing for the examination of agricultural implements, and he moved the adoption of a resolution allowing such

exhibitions during the time set apart for testing fruits. Agreed to.

Joseph H. Witmer believed in making haste slowly. We may overdo the matter. We may be over-run by the patent right men, as they were in New York. The result there was that the local society was compelled to shut down on the agents.

The Oil Remedy.

Casper Hiller read an extract from an old almanac, as follows:

I have here in a German almanac of the year 1884, a few items that are worth repeating. The first says "Tanner's oil, or Linseed oil, kills surely and quickly the worms that attack the apple tree. You need only put a little of the oil where the worms have laid themselves to get rid of them." The second is about preserving peach trees: "Make a box about a foot wide and deep, around the tree, and fill it with tan bark. This will keep the worms that are so destructive to peach roots entirely away, as no worm will ever go into the tan, no matter how old it will get."

The oil remedy has of late years become popular for destroying scale or bark insects and for a prevention of blights in pears. The apple tree borer, the most destructive of all worms or insects that infest the apple tree, is a later importation than 1824. Our almanac compiler would hardly have found it practicable to eradicate the borer with oil. There is, however, little doubt but that the application of oil around the base of the tree would be an effectual preventive against the borer.

Most oil sold under the name of linseed is as little the product of flaxseed as oleomargarine is the result of cow's milk. Science contains petroleum into so-called linseed oil. These petroleum mixtures are so dangerous to plant growth that we should be careful not to use any oil unless we are quite sure that it is pure linseed oil.

The box "idea" around peach trees is a good one, and has been tested successfully ever since. I do not think there is anything in the tan that is especially obnoxious to the peach borer. Experience has shown that these boxes should be filled in May, before the time that the perfect insect deposits its eggs. This filling may consist of coarse sand, blacksmith clinders, tan, bark, etc., and should be removed in September. The borer usually lays its eggs near the ground where the bark is tender, and by covering this half hard bark, makes it difficult for the insect to deposit its eggs. Besides, should a borer find lodgment, it could easily be seen and removed when the box is emptied.

I was under the impression that the peach borer was a later introduction.

My knowledge of 50 years ago is that peaches were plenty. The trees were planted along fence rows, and out of the way places—received no care whatever, and got to be old trees. But the above extract would show that even then the borer was known.

Tan Bark Remedy.

We also read an extract from the almanac recommending the use of tan bark around the lower part of the trunk; on which he commented as follows:

Is Pig Raising Profitable.

Joseph H. Witmer believed that a sow can be kept at the present price of food for \$13. At such a cost the raising of pigs can certainly be made profitable. As to what profit there was in growing pork, if any, he was not prepared to say. But his stock was of the best and he got large prices for all he had to sell.

Casper Hiller believed hogs can be raised here at a profit. He now breeds the Jersey Reds. The meat is not so fatty as other breeds and is decidedly the best he has ever had. The hogs he killed this year certainly did not cost him so much as the meat would have cost him in the market.

H. M. Engle believed it proper that a committee should be appointed to formulate a set of rules offering premiums to farmer's boys for the largest crops grown on a certain portion of ground. He further advocated offering premiums for competitive essays.

Resolution of Thanks.

On motion the following resolutions were unanimously adopted:

Resolved, That the thanks of this society be tendered to Hon. A. Herr Smith, our representative in Congress, for his prompt attention to our farming interests in urging before Secretary Folger a reconsideration of the decision respecting the admission of foreign leaf tobacco under low rates of duty.

Resolved, That the thanks of this community are due Senator Mitchell for voting in the United States Senate against the proposed treaty with Mexico, which would virtually open a door for the importation of foreign tobacco free of duty.

Resolved, That these resolutions be communicated to the gentlemen named.

On motion, the Society adjourned.

FULTON FARMERS' CLUB.

The Farmers' Club of Fulton township, met at the residence of Joseph R. Blackburn, on Saturday, February 2d, all the members being present but McCallum Brown and Josiah Brown. The visitors were: Layman Blackburn and family, H. H. Haines and wife, of Rising Sun, Md., Elwin Stubbs and wife, Marshal Heshit and family, Elwood Stubbs and family, and Wm. Hains, making in all quite a large company.

The minutes of last meeting were read. Grace King stated that her answer to the question "Could 100 bushels of corn be raised on an acre of ground where 60 bushels was an ordinary crop," reported at the last meeting read as if intended to mean one acre. She understood the question to include several acres and her answer was given accordingly.

Minutes were then approved. There being no specimens to exhibit E. H. Haines asked, "Does any one know the real value of cotton seed meal of feed for stock?" No one present had ever used any for feed. Some had heard it spoken of as a good substitute for corn.

L. Wood asked, "Has any one noticed more cream on morning than evening milk?" Esther Haines had noticed this to be the case but could not give no reason unless it be the milk is warmer during the day than it is during the night. R. D. King thinks it is because the cows are always quieter at night than through the day. The secretion of milk is always greater when they are quiet than when they are stirring around or excited.

R. D. King asked, "Can you test the quality of new milk by weight?" E. H. Haines replied that cream is lighter than milk, and milk that is rich with cream would consequently be lighter than that which contains a less quantity of cream.

Wm. King asked, "Will creameries be likely to supersede the private dairy?" Sol. Gregg thinks they will as they have better facilities; could make a more uniform quality and with their improved machinery make it cheaper, and by selling in large quantities command better prices.

Ed. Stubbs if creameries can make a better article of dairy will have to go.

E. H. Haines: In getting large quantities of milk there is always some of it that will be of poor quality and by mixing it together it will affect the butter. He thinks there will always be a demand for dairy butter no matter to what extent the creameries may be carried.

Club adjourned for dinner, and after gratifying the wants of the inner man, the male members took their usual stroll over the host's farm.

After the call to order at the afternoon session, the minutes of the last meeting held here were read, and in answer to the President's call for criticism, Sol. Gregg replied that they found things in their usual good order. Wm. King spoke of an improvement, a bay window, which adds much to the appearance of the host's house. E. H. Haines spoke of the host's new departure from the old way of ploughing his stock ground in the fall. He thought it was a good idea. He noticed that cultivated oats has been doing better than if the ground is ploughed in the spring. But the great obstacle to cultivating has

been the rubbish on the ground. Fall ploughing will allow of the ground becoming well settled, and there will be little or no trouble in cultivating in the spring. The host deserves credit for making the experiments.

Layman Blackburn found objections to so much ice around the buildings; does not believe in the plan of ploughing the oats ground in the fall.

Corie Blackburn recited "The Triumph of our Language."

Grace King read an article from *The Farm Journal* on "Care of Horses."

The host read a letter he had received for E. Reynolds, of Cecil county, Md., addressed to the club, giving his experience and some suggestions on the cultivation of German carp and describing the location and mode of constructing ponds.

E. H. Haines suggested that the club hold a joint public sale, thus giving members who have stock for sale an opportunity to dispose of it, by joining together, employ an auctioneer and hold it in some central place. The club was pleased with the proposition, but the matter was postponed until a future meeting.

The following question was adopted for discussion at the next meeting. "As hay, corn and oats usually sell in our neighborhood, is it better to feed or sell them?"

The club takes this opportunity to return thanks to Hon. Wm. Brosius, for copies of the annual reports of the State Board of Agriculture.

Adjourned to meet at Lindley King's residence, March 7, 1884.

LINNÆAN SOCIETY.

The Linnæan Society met on Saturday afternoon, January 30th, 1884, at 2 P. M., the President, Hon. J. P. Wickersham, in the chair. The minutes of previous meeting were read and approved and monthly dues collected.

Donations to the Museum.

Two specimens of the larva of a species of *Harpalus*, supposed to be pennsylvanicus—a common "ground beetle"—belonging to a family of the Carabidae.

What is especially remarkable in regard to these insects is that they were found active on the snow, about the beginning of January, after a temporary thaw, and so numerous were they that they attracted the crows.

Donated by Mr. Frederick Beates, of Willow Street, on whose premises they were found.

Three cases of the "case worm" or "caddis worm," the work of the larva of a species of *Phrygania*, belonging to the order Neuroptera; and also the sack of the "sack worm" or "drop worm," *Thyridopteryx ephemeriformis*, belonging to the order Lepidoptera. The former constructs its habitation in streams of water, out of whatever material it may be able to find there, and the latter on trees and shrubbery, out of leaves and leaf-stems. Of course, in both cases the outer appearance will differ according to the material to which the insects have access.

Several specimens of what seems to be the evarate eggs of a species of *Bombilyda*, perhaps *Atacus luna* or *cecropia*, by S. M. Sener.

A dried specimen of what is called a "Cedar apple," about which there has been, and still is, a difference of opinion, as to whether it is a fungus or a gall—whether produced by an animal or a vegetable spore. It is said that the larvae of a species of *synips* have been found in them; but this may not be the cause of the excrescence, any more than the larva of a *Cureulio* is the cause of the "black knot" of the plum or cherry tree.

Two bean seeds infested by *Bruchus fabae* or "bean-weevil"—illustrating the destructive character of this insect compared with *Bruchus pisi* or "pea-weevil," which seldom, if ever, deposits more than one egg in a pea seed. These two seeds show fifty cells, from which most of the insects have escaped.

A fine specimen of the common "Toadfish," (*Batrachus tau*) donated by Mr. John Sides, of North Queen street, found occupying an oyster shell. These fishes are frequently brought to the city of Lancaster, through the dealers in bivalves, and are generally found between the two valves. Of course when these fishes are large enough to fill the whole cavity, very little else can be there. Occasionally they are found outside of the shell. I have never been able to learn from those persons from whom I obtained these fishes, whether the shells contained any part of the animal, at the time these fishes occupied the shell, or whether the fish alone occupied it: As the tan sometimes occurs twelve inches in length, it is very probable that the young fish resorts to an already vacated oyster shell as a protective habitation just as the "Hermite crab" does. In its native element, it is said to be often found in cavities under stones, oyster beds would afford similar protection from all enemies, except parasites, and the oyster-man's dredge.

Mr. A. J. Zercher, of Conestoga, donates an In faint chick of the white or light Brahma variety, with four well defined legs. It has been said that these monstrosities only occur under domestication, and never among animals in a wild state. This has been contradicted by a piscatorial writer, who states that in the Columbia river, the salmon exhibit these abnormal forms, and sometimes large numbers occur in the same locality.

Donations to Library.

The United States Coast and Geodetic Survey for 1882. A quarto volume of 565 pages, containing additionally, 34 folded maps and charts, also 16 quarto maps and nearly 50 other illustrations, from the Coast Survey at Washington, D. C.

A copy of the *Albuquerque Morning Journal*, for January 1, 1884.

A copy of the *Manitoba Daily Free Press*, for August 11, 1883.

A copy of the *New York Sun*, for December 23, 1883.

A copy of the *Sacramento Weekly Union*, for January 5, 1884.

These papers are all large 16 page folios, some of them profusely illustrated, containing interesting local historical matter, and are landmarks in the newspaper progress of our country. They were donated respectively by Messrs. W. L. Strachan, C. A. Heinisch, W. Rex McConsey and J. Wittich.

Copy of *Buffalo Daily Courier* containing proceedings of annual meeting of the Buffalo Historical Society.

Pamphlet on the Wyoming massacre, illustrated with a plate of the monument erected there.

Alphabetical list of inventions from January to June, 1883.

American Bookseller and several other circulars and prospectuses of scientific books.

The librarian handed in a report of the number of books donated and purchased by the society, from January, 1883, to January, 1884, and also the present condition of the library.

Action on Constitution and By-laws was again deferred until a future meeting, and the secretary asked to see several of the members and endeavor to make arrangements for an evening meeting to act on the same, and to notify the members of the time and place by mail.

The president then announced the following gentlemen and ladies as chairman of the different committees:

Mammology—Dr. M. L. Davis.

This subject of the *Aquosus Bream* belongs to the order *Acanthopterygii* of *Spined-fishes*, and to the family *Perculidæ* or "Angler-fishes." The most conspicuous presentation of the family is the "Angler" or "Goose fish," sometimes also called the "Fishing frog." *Lagodon Americanus* of *Cuvier*, an exceedingly voracious fish, which is from two to three feet long, and attains a weight of seventy pounds. It has a long spine on the front part of the head, which it can raise up at will. This spine has a fleshy end, with a poisonous oblong bulb, which is used as a decoy to other fishes. The best line fish on the bottom of the ocean, and when a lesser gourmet snags at the tempting bait, lo, the sponger himself gets snipped. So at least "so the story goes."

Ornithology—W. L. Gill.

Herpetology—Dr. T. H. Baker.

Ichthyology—C. A. Heinisch.

Entomology—Dr. S. S. Rathvon.

Botany—Mrs. L. D. Zell.

Geology—Prof. J. S. Stahle.

Paleontology—Dr. J. Dabbs.

Microscopy—W. P. King.

Archæology—S. M. Sener.

Mineralogy—J. B. Keynlock.

Natural and Historical.

Miscellaneous—Mrs. P. F. Gibbons.

A communication was then read from A. F. Berlin, of Allentown, in reference to the Indian Altar photographed for the society by Mr. Gill.

The secretary announced that since the last meeting he had notices printed and sent to all members in arrears for dues, and that some of them had responded promptly. On motion the secretary was then authorized to propose to the stockholders, who are delinquent for some time, that they return to the society their share of stock in lieu of the indebted dues and that the society would then release them from any further obligation and remove their name from the roll.

After some scientific discussion society adjourned to meet on Saturday, February 27, 1884, at 2 P. M.

STATE AGRICULTURAL SOCIETY.

At the meeting of the Executive Committee of the State Agricultural Society, held on Wednesday in Harrisburg, the following officers were elected for the ensuing year: President, James Miller; Vice Presidents, George Blythe, L. H. Twaddell, John Hunter, William M. Slingerly, Burnett Lambrecht, David H. Branson, William H. Holstein, Tobias Barto, S. S. Spencer, Daniel H. Neiman, D. H. Walker, Ira Tripp, J. S. Keller, Gab Heister, J. Pollett, Robert P. Allen, John A. Lenon, J. S. Miller, Daniel O. Gehl, L. A. Mackey, George Rhy, J. Y. Chopper, W. W. Speer, John McDowell, James A. McKean, J. D. Kirkpatrick, J. C. Thornton; at large, J. A. Paxson; addition members—Executive Committee, A. Wilhelm, Abner Rutherford, William Taylor, John H. Ziegler, Jefferson Shamer; ex-Presidents—Members of the Board, Frederick Watts, D. Taggart, Jacob S. Haldeman, W. S. Bessel; Corresponding Secretary, Elbridge McConkey; Recording Secretary, D. W. Selzer; Treasurer, John Rutherford; Chemist and Geologist, A. L. Kenenly; Librarian, Wm. H. Empe.

HORTICULTURE.

The Age of the Orange Tree.

The great age to which the orange tree lives and bears is an important consideration for the colonist, who might, by a little self-denial, and through a judicious first selection and expenditure upon an orange grove, virtually endow his posterity with an annually increasing income. Blass, in the work already alluded to, mentions that in the Convent of St. Salome, at Rome, there is an orange tree said to be 600 years old, and at Nove, 1789, there was another which usually bore between 5,000 and 6,000 oranges; it trunk took two men to encircle it, its crown was more than 50 feet from the ground, and its age was 1-1/2 in that ratio. Even in England, orange gardens, during a considerable part of the year in the open air, has not been attended with much difficulty, as witness the Bodington orchard in Surrey, of which Bishop Gibson, in his contributions to Camden's *Britannia*, says it "was 100 years old in 1855;" the Hampton Court orange trees, some of which are stated to be more than 300 years old; and various gardens in South Devonshire, where, trained against the walls, and only protected with straw mats during winter, are specimens which have flourished for at least a century.—*Chamber's Journal*.

Cultivating the Sweet.

The nuts must be gathered as soon as ripe and planted as follows: The ground should be well prepared by ploughing deep—the deeper the better, then

well harrowed. Now, with a corn-marker, mark off both ways (one with the runners four feet apart is the best). Then with a two-horse plow furrow every other mark east and west, if the grove is to be used for a wind break; if not, either way will do; then drop one nut at each crossing of the marker. Trampling on the nut as dropped to settle it in position is a good plan. Cover with the hoe as deep as potatoes are covered, tramp on each hill. This will leave the trees four feet in the row, with rows eight feet apart. After remarking that the cultivation should be the same as for corn, only continued during the season "so long as the weeds grow," he describes his way of counteracting the tendency of the seedlings to send out side-branches: "My experience in cutting them off the first, second or third winter after planting was with a grove of two acres that were cut off close to the ground the third winter after planting. The next spring from six to a dozen sprouts came up from each tree; these were let grow till eight or ten inches long, then all were broken off but the thirteenth one. All did not start and grow at first; and some that did threw out more shoots. I had to go over them three or four times before they were in good shape. This of course required considerable labor. The first season they grew up straight and nice from four to six feet, but the following year the side branches came thick and fast with that peculiar inclination the walnut tree has on high prairie land of getting wider than its height. Pruning is the only way to make a nice tree out of a walnut. Still I think the tree will pay for all the labor bestowed upon it."—*Kansas Farmer.*

Something About Persimmons—Results of Cultivation.

"What's them things, mister," asked a countryman of a Fulton Market (New York) fruit dealer, pointing to a peculiar looking fruit about two inches in diameter, of a terra-cotta color, closely resembling an apple in shape, and having a needle like point at one end and something like an acorn cap at the other.

"Why, these are the celebrated Tennessee persimmons!"

"These persimmons," said the dealer to a *Tribune* reporter, "came from a farmer near Nashville, Tenn., who makes a specialty of growing them. He finds it a profitable business, and has brought the heretofore almost worthless fruit to a high state of perfection. The specimens are green, of course, and were sent to me for comparison with the Japanese persimmon. I find them larger, but cannot judge of their flavor until they are ripe, which they are not till bitten by the frost. Frost mellow them and removes all astringency, making them as sweet as sugar and of a delicious flavor.

"The persimmon, indigenous to the South, grows upon small trees seldom exceeding fifty feet in height, and in a wild state the fruit is small and unattractive, though extremely sweet after frost. Children are fond of the persimmon, but they are most popular with the 'possum, who walks forth nightly to regale himself and become a victim of the boys and dogs who know just where to find him. A persimmon tree is a 'possum's Delmonico. Some people have experimented with persimmons in various ways, and I have known them to be dried and pressed, in which condition they eat as well as the dates of Arabia. The farmer from whom these came has realized as much as \$10 a bushel for his cultivated variety, and, I understand, he has devoted a goodly portion of his land to a persimmon orchard, with the intention of showing the American people just what can be done with a product which grows in every old field in the southern and central States, and has heretofore been looked upon as little less than a nuisance."

Cucumber Culture.

Although the cucumber is pronounced by physicians to be very unhealthy, yet it is very generally cultivated; and, in fact, no kitchen garden can be complete without it. It usually sells for a good price in market, and I, for one, am very fond of it,

especially in the form of pickles, if these are put up as they should be.

My mode of culture is to dig out good sized holes, six feet apart each way, and place about one peck of well-rotted manure in each; then fill up somewhat higher than the original surface, so that after the dirt settles, it will be about level with the surrounding ground, and plant eight or ten seeds in each hill. If very dry, I give them a sprinkling each evening after sunset, before they come up as well as through the season, for they are plants which require considerable moisture. I hoe often, and after danger from the striped bug is passed, thin to four plants in a hill.

The striped bug, *Diabrotica vittata*, seems to be a natural enemy of the cucumber, and against him I have tried all sorts of remedies which I have seen recommended. Boxes with tin cloth tacked over the top, are effectual preventives, but if one has many hills, devices of this sort are expensive. The last season I kept vines free from bugs by the use of ashes and kerosene. I moistened the ashes with kerosene and applied a handful to the center of each hill. It seemed to spread too strong an odor for them, and they beat a retreat. After commencing to bear, we look them over every day and gather some for pickles, saving a few of the earliest and most perfect ones for seed, and when they are ripe we pick them off and place them in the sun a few days; then the seed is taken out, washed clean, dried and put in paper bags for the next spring's planting.

How to Keep Flowers.

As a general thing flowers will droop and fade in a day and night; yet there are kinds, like the carnations and eupatoriums, which can be kept longer if the water is changed morning and night, and a few drops of camphor spirits added to it. But if the faded flowers are put into a dish of scalding hot water deep enough to cover one-third of their stems, by the time the water has cooled the flowers will have become fresh and erect. Then cut off the ends of stems and put them into cool water with a small bit of saltpeter in it. Flowers will keep longer in dishes of wet sand than in vases of water.

For Constant Mignonette.

The expert recommends four sowings of the seed, the earliest will soon be here. To have mignonette the year round, it should be sown in February, again in April, in September and October. It is best to grow it in pots first until just ready to bloom, and then transfer to a window box, where the plants can branch out and flower for a long time. For soil in the pots use three parts loam, one part manure, one part leaf-mould. Apply water in the mornings, that the foliage may be dry before night. Thin out the plants as fast as they grow up, until only five are left in the pot; shade from the sun in the middle of the day, as otherwise the foliage will be discolored. For training, five small stakes can be placed in the pot at equal distances, to which the plants may be tied. In thinning, keep the largest in one pot and the smallest in others, so as to have a succession of bloom. If it is required that some bloom late, pinch off the tops of a few as soon as they begin to flower; they will break out again and bloom three weeks or a month later. The *Rosita whelanii* "manche" is a vigorous new species, with massive and fragrant red bloom.

HOUSEHOLD RECIPES.

SCOTCH BUNS help to give variety at the tea table: To one pint of yeast add one quart of lukewarm water, one teacupful of lard and butter mixed, two cups of brown sugar, one pound of English currants, one pound of raisins; do not chop the raisins, but eat them in two pieces. Beat six eggs very light; mix the butter and sugar together, then put in the eggs and fruit, put in allspice, cloves and nutmeg according to your taste; then stir in the yeast and water, and flour enough to make a dough that can be moulded in loaves. Put in long, narrow tins to

rise. When very light—which will be in from four to five hours—pierce with a silver fork, and bake in a moderate oven for an hour.

OATMEAL FOR FAMILY USE.—In Great Britain children are raised on oatmeal diet alone because it causes them to grow strong and healthy, and no better food can be found for them; it is also as desirable for the student as the laborer, and for the lady as the servant girl. Indeed, all classes would be benefited by its use, and dys-pepsia troubles would all be done away with. Oatmeal is a very substantial food; it is equal to beef or mutton, giving as much or more mental vigor; it is especially good for nursing mothers. Oatmeal requires to be cooked slowly, and boiling water added as it is needed.

ICE WAFFLES.—Boiled rice, one cup; eggs, three; butter, one ounce; sour milk, two cups; salt and soda, one teaspoonful each. Stir the rice to separate the grains well; add the butter creamed, and the eggs frothed; dissolve the soda, stir into the milk; add to the mixture with flour enough to make a batter, rather thick; heat the waffle iron and rub well with butter; fill three-quarters only, and bake carefully.

CANNED MUSHROOMS may be served with good effect with game, and even with beefsteak, if prepared in this way: Open the can and pour off every drop of the liquid found: let the mushrooms drain, then put them in a saucpan with a little cream and butter, pepper and salt; let them simmer gently for from five to ten minutes, and when the meat is on the platter pour the mushrooms over it. If served with steak, that should be very tender, and be broiled, never in any case fried.

MARYLAND PIE.—Pare six medium sized potatoes, cover with hot water, and boil until they are soft, mash them with a little milk and salt. Butter a small pudding dish, and put some of the potato around the sides. Lay in slices of cold mutton; that which is a little rare is best. Put in pepper and salt, a wine glass of catsup, and enough gravy to make the meat quite moist. Cover with mashed potato, score it with a knife, and bake in the oven about forty minutes. Just as it begins to brown rub a little butter over the top.

LITTLE BOY'S PORRIDGE.—Two heaping table spoonfuls of Indian meal and a like quantity of flour; one cup of boiling water; two cups of hot milk; one teaspoonful of salt. Wet up flour and meal with a little cold water and stir into the boiling water. Salt to taste, and cook steadily half an hour in a tin vessel set in a pot of hot water, stirring often. Then beat in the milk gradually, working out all the clots of paste, and cook ten minutes longer. Eat with milk and sugar.

CHOCOLATE WHIPS.—One quart of milk; one (ounce) square of Baker's chocolate; one generous half cupful of sugar; six eggs; a little salt. Scrape the chocolate fine and put it in a small frying-pan with two tablespoonfuls of the sugar and one of boiling water. When dissolved, add it to a pint and a half of the milk, which should be hot in the double boiler. Beat the eggs and remainder of the sugar together, add the cold milk, and stir into the boiling milk. Stir constantly until it begins to thicken. Add the salt, and set away to cool. Season one pint of cream with two tablespoonfuls of sugar and half a teaspoonful of vanilla extract. Whip to a stiff froth. When the custard is cold, half fill the glasses with it and heap whipped cream upon it. Or it can be served in one large dish with the whipped cream on top.

SOUTH CAROLINA PATTY PIDDING.—Beat up four eggs thoroughly; add to them a pint of milk and a reasonable pinch of salt. Stir a teacupful of flour and add it gradually to the milk and eggs, beating lightly the while. Then pour the whole mixture through a fine wire strainer into the tin in which it is to be boiled. This straining is imperative. The tin must be perfectly plain and must have a tight-fitting cover; the least bit of steam getting at the pudding would spoil it. The potful of boiling

water in the puddling pan is placed must not be touched or moved until the puddling is done. It takes exactly an hour to cook. If moved or jarred so that the puddling can oscillate against the side of the pot the puddling inevitably falls and comes out heavy. Slip it out of the ear on a hot dish, and serve with rich sauce.

PINK JELLY.—Take two ounces of gelatine and dissolve it in a quart of water; put this in a saucepan with the juice of two lemons, a glass of pure currant jelly, the juice of three and grated rinds of two oranges, two whole eggs, whites of two eggs, a few egg shells and three-quarters of a pound of sugar, mix well and add another quart of water. Put the saucepan on the fire, stirring occasionally to make clear; when it boils put the pan on the side of the stove and let it remain without boiling for fifteen minutes; then remove it and run the jelly twice through a flannel strainer. Pour into moulds and set on the ice to harden.

A VERY easy way to poach eggs is to get boiling water in your mullin tin and set them on the hottest part of the stove; break the eggs in a saucer, then drop one in each tin; in two or three minutes it will be done, and can be taken up one at a time in good shape with the help of a strainer, season with butter, pepper and salt.

TURNIP SOUP WITH RICE.—Two ounces of butter, six turnips, two onions, three pints of stock and seasoning; melt the butter in a stew-pan, but do not let it boil; wash, drain and slice the turnips very thin; put them in the butter, with a tea-spoonful of stock, and stew very gently for an hour; then add the remainder of the stock and simmer for another hour; put it through a tammy; put it back into the stew-pan, but do not let it boil. Serve much warmer than soup usually is served. A half cup of cream is an improvement. Serve the rice (boiled) very cold, and in little pyramids in a plate to each member of the family.

LEMON DEMI-GLACES.—Take half pound of bread crumbs, the juice and grated rind of two lemons, quarter of a pound of suet, freed from skin and finely chopped, a small cup of sugar, two eggs, half a pint of milk and a little salt. Mix and beat all well together and divide into six parts. Boil in squares of cloth or small moulds, without stopping, for one hour and a quarter, and serve with a hot liquid sauce flavored with the juice and grated rind of a lemon.

CREAM PIE.—For the crust, take three eggs, one cupful of sugar, one cupful of flour, one-third of a tea-spoonful of soda, and one tea-spoonful of cream of tartar. Beat the whites and yolks well separately; stir all together quickly as possible, and bake in two pans (if rather small—if large use only one), the batter three-fourths of an inch thick. For the cream, take two and a half cupful of sugar, two table-spoonfuls of flour and one egg. Boil this a few moments until it has thickened, and flavor with vanilla or lemon. When the crust is cold, split it and put the custard between. This cake is much improved with a boiled icing.

CORN MEAL MUFFINS.—Warm milk, one pint; flour, one cup; sugar, one table-spoonful; salt, one tea-spoonful; compressed yeast, one cake. Mix well and add enough corn meal to make a thin batter. Set to rise over night. In the morning add one tea-spoonful of soda dissolved in warm water, and one of melted butter. Baked in muffin tins. These yeast muffins do not, like those made with soda, get heavy when cold.

TRIFLE.—Peel, core and stew till quite tender half dozen or more apples; sweeten and flavor with a little chopped lemon peel. When cooked let them cool a little, then pour up into a glass dish; it should be barely half filled. Now make a boiled custard in the ordinary way, but without flavoring; let this also cool; then pour on the apples when they are quite cool. Strawberry or raspberry jam may be used instead of apples.

LUNCHEON TAKE-AWAY.—Wash a tea-spoonful of rice, and simmer till tender about a pint and a half of milk,

sweeten to taste. Place a thick layer of Sultana raisins in the bottom of a dish; pour on them the boiled rice; place two or three tiny bits of butter on top to prevent burning, and bake for three-quarters of an hour. When quite cold it should be firm; gently disengage it with a knife from the sides of the dish, and turn out, when, if the rice was carefully poured in, all the Sultanas will be on the top. The dish should be buttered before using.

LIVE STOCK.

The Food of the Horse.

The food of the horse requires just as much attention at this time as at any other season. In summer he is rightly fed large quantities of grain because his labors are arduous. The expenditure of much muscular force calls for this highly nutritious food, and vigorous bodily exercise insures its digestion. But when, as in winter, the horse is idle more often than at work, his food should consist of clover rather than grain. He will fatten and grow strong on it just as well, and when spring and hard work comes he will have a vigorous appetite for grain. He will eat it with a relish, while if he is fed grain largely during the winter he will lack appetite for it when he should eat the most of it. I believe that a horse should be watered just as often and carefully in winter as in summer. Intense cold produces as great a thirst as heat. It does not require as much water to quench it, but the feeling of discomfort is as great. I am certain that many of my readers have noticed that of a frosty morning they feel thirsty every few minutes, though it requires but very little liquid to allay that thirst. It is so with the horse. There can be no greater cruelty than to compel him to lick snow, which only aggravates his thirst, and yet I know of quite a number of farmers who are guilty of this very thing. Horses should be watered at least three times per day, in winter as well as in summer.

As to Clipped Roadsters.

"Horses Clipped Here" is a sign displayed at numerous livery stables.

"We have clipped 150 horses this year," said a horseman yesterday. "A long coated horse can't get fat. When clipped the horses eat less, but gain flesh rapidly. Drive a horse with a long coat and he is soon covered with perspiration. Then, if the weather is cold, the perspiration freezes about the hair, forming tiny icicles. Livery horses brought into the barn after a long drive and covered with blankets are still wet the next morning. Hence they take cold, and are often seriously ill. Here is a horse you could stand a block away from and count the ribs of two weeks ago. He was clipped, and now you may see how sleek and fat he is. Before the clipping he ate five cents worth of oats, but he doesn't eat all, and may be scarcely touches. Then he was a light chestnut. Now he is of a pretty mouse color. That bay horse was clipped in October. His hair is growing long and thick and in January or February he will need the shears again. Nearly all horsemen are in favor of clipping. The best veterinary surgeons in the country say it is greatly beneficial.

"We charge \$1 for clipping a horse. At some other places the work is done for \$3 and \$3.50. Take a long-coated horse valued at \$100 and by clipping him you will in many instances enhance his value 25 per cent."

Cross Breeding—Grading Up.

Farmers ought to be familiar with the oft-repeated advice to use nothing but pure blood males in grading up stock of any kind, but we doubt if the reason is thoroughly understood by all. It is an accepted truth among a large class of intelligent stock breeders, and also among physiologists that the male of any species or breed of animals will have more effect on the offspring than the female, and that the thoroughbred is pre-potent in this respect. This is

equivalent to saying that any animal will "take after" its male more than its female parent. Admitting the truth of this rule, it is easy to understand that, other things being equal, we may confidently expect better results from the crossing of a pure blood male to a common female, than from the reverse. Even if the rule be not true the practical reasons for cross-breeding by means of pure blood males are overpowering. By this process a much greater number of grades can be secured within a short time than by attempting to grade up a common herd by means only of a female of pure blood. A cow, at the most, will bring but one calf each year; so that if the process of grading up be confined to female pure bloods the process will be very slow.

By means of a pure bred male an entire herd of cattle or other stock can be bred up in a few years to high grades. It must be borne in mind that in "grading up" a pure blood—on one side—must be used in every successive crossing, else the process, instead of resulting in grading up, must necessarily result in constant *degrading*. A cross bred can never be of higher grade than the parent of the best blood, but will always be a mean of the two. The moment you stop using pure blood you stop all improvement. Hence, (1) a constant stream of pure blood is indispensable to constant improvement, and (2) a pure blood male is much to be preferred, for grading purposes, than a pure blood female. A half-blood animal in a herd of common stock is little, if any, better than no blood at all—so far as any permanent improvement of the herd is concerned.

STOCK NOTES.

Here is a sermon from the *Farmer* (Eng.) that we have always preached: "Old cows that have been milked to the very last are not worth much to the butcher. If a cow of about thirteen years of age could be had for nothing she could hardly bring in any profit by fattening, for in proportion as her life becomes exhausted so will digestion gradually fail."

One of the most successful dairy cows has been made by crossing the Guernsey bull on high grade shorthorn cows of milking families. The progeny is thereby improved in form over the Guernsey, is of rather a larger size when full grown, yields a greater quantity of milk and generally of about as rich a quality, from which superior butter is made. When dried off, these grade cows are economically and quickly fattened for the shambles and turn out excellent beef, highly prized in the market.

Our fancy cattle breeders can find something to think of in the address of Professor Samuel Johnson at the recent Short Horn Convention in Detroit. He said that nearly all the prize-winners at these fairs and sales were whites or roans, and made the following inferences from his resume: "That the prize awarded at shows and prices paid at sales are proof positive that the color mania has not attacked English breeders. English and Scotch purchasers never discard a good shorthorn because its hair is not red; that is an American monopoly. That animals of mixed breeding have been most successful in the show ring, and in good demand at the sales. That the business of breeding shorthorns on their native soil is in a healthy state—the result, in part, of breaking away from the baseless claims of pedigree without individual excellence."

A correspondent says that young horses should never have shoes imposed upon them until it is well proved that they cannot do without them. He predicts that the day is not far off when some humane benefactor of his kind and horse kind will produce a breed of horses having such firm, tough feet, in addition to all other good qualities, that shoeing will be unnecessary.

A great many farmers believe that the breed of hogs is determined by the amount of corn in the crib. It is true that the best bred hogs require the most liberal feeding. In fact, it is one of the advantages of a good breed that it will make better use of the greatest amount of feed than a poor animal, but a

starved pig of the best breed is the worst kind of a scurub.

Horses are naturally scrupulously cleanly, and the nearer you keep them in such a condition the better they will thrive. Especially are they so about their when at liberty to select what they wish, yet it is too often the case that when they are fed in the stables and elsewhere, their troughs become sour and mouldy, or that their food is thrown to them in some filthy place that would be enough to destroy their appetite.

The length of time that a young heifer keeps in milk after her first calf is likely to measure her staying qualities for all after-life. For this reason young heifers should have their first calf in the fall. By good care and ensilage food in winter an abundant flow can be established, which can more easily be kept up the next summer. If heifers early in the spring they are very liable to go dry early in the next fall.

Mr. John R. Woods, of Albemarle county, Va., says: "I have been raising Shropshire sheep from the best importations since shortly after the war, and have no hesitation in giving it as my opinion that they are the hardest and most profitable of all the English breeds which have been imported. I have raised sheep since 1839, when I commenced farming, having tried Cotswolds, Lincolns, Leicester, South-downs and different crosses, and this long experience confirms me in the opinion I have expressed above."

As far as possible, the formation of manure heaps in the fields should be avoided. If formed, the practice of turning over the manure should be abandoned as labor is thus lost and much manure wasted. The best authorities consider it best to cart the manure direct from the barnyards to the land and spread it at once.

LITERARY AND PERSONAL.

REPORT OF THE U. S. ENTOMOLOGIST.—CHAS. V. RILEY, M. A., Ph. D. for the year 1883; (Author's edition, from the annual report of the Department of Agriculture for the year 1883); royal octavo, pp. 96, with 13 full pages of illustrations, three of which are colored; including explanations of plates, a general index, and a special index to the plants infested by the insects alluded to in the body of the work. This report is largely devoted to the history, development, and damages to the various species of "Cabbage Worms," and remedies for their destruction. Also the "Imported Elm-Leaf Beetle," the "Lesser Migratory Locusts," experiments on scale insects, and many miscellaneous observations and suggestions. We tender our acknowledgments to Prof. Riley for this and *Bulletins* Nos. 1, 2 and 3 of the Department of Agriculture, Division of Entomology. Bug reports of experiments, chiefly with kerosene upon locusts injuriously effecting the orange tree and the cotton plant, under the direction of the Entomologist; reports of observations on the "Rocky Mountain Locust," and the "Chinch bug, etc., also a duplicate of No. 3 noticed in the January number of the FARMER.

We also acknowledge from the Department, the receipt of: Report of the crops of the year, of cereal productions in Europe, and the freight rates of transportation companies, December, 1883; proceedings of a National Convention of cattle feeders and others, called in Chicago, Ill., November 15 and 16, 1883; by Hon. George B. Loring, Commissioner of Agriculture, to consider the subject of contagious diseases of domestic animals; also special report on Mississippi, its climate, soil, productions and agricultural capabilities, by A. B. Hunt, special agent. These several bulletins contain 515 pages, royal octavo, with 16 full-page plates of fine illustrations, besides many tabulated statistics which are highly useful to those who bred them. The "Elm leaf beetle" and the "cabbage worms" have been specially destructive, in places about Lancaster for the past two or three years, and those who began to fight the latter early in the spring, succeeded in

heading them off to a very great extent. As to the Elm-beetle, there were so many of them, and the trees so very large and high, that the work has thus far seemed too great for any one to undertake their destruction, and yet, millions of them came down from the trees and pupated around their bases, and could have been destroyed, but were not.

THE MONTREAL.—A monthly journal, devoted to the material interests of the Southwest; Howard W. Mitchell, editor; Charles O'Connor Roberts, associate editor. Published at the Cromwell building, Albuquerque, New Mexico. Address Postoffice Box No. 233. We have received a copy of the January number (Vol. 1, No. 1.) of this lively looking journal, and so far as material and mechanical execution are concerned, it is superior to anything published in Pennsylvania, devoted to similar specialties. It is a four-columned, twenty-paged, super-royal quarto, in tinted covers, and is very amply illustrated with scenery and buildings of Albuquerque and the surrounding country. Of course, the leading interest to which it is devoted is mining and other prominent interests relating to mining; not forgetting those that relate to agriculture, mechanics and domestic affairs, interspersed with interesting and well written historical and biographical sketches, and its advertising columns seem to be liberally patronized. Price \$3.00 a year.

THE ARGONAUT.—A 16-paged, three-columned, super-royal quarto, devoted to the current literature of the times. Frank M. Piskey, editor, San Francisco, Cal. We are under obligations to W. Rex McCoomery, of the History Department A. L. Bancroft & Co., for a January number of this very able and very spicy journal, and peruse it with more than ordinary interest. Price, 10 cents a number.

THE SUGAR BEET.—Devoted to the cultivation and utilization of the sugar beet. 16 pages quarto. Vol. 5, No. 1. Philadelphia, February, 1884. An illustrated and beautifully printed quarterly. Price, 50 cents a year or 15 cents a single number. The illustrations in this number relate to the drills, plows and cultivators used in the cultivation of the beet. If beet culture and beet sugar are not a final success in this country its failure cannot be legitimately attributed to this journal, for no cause has ever had a more able or faithful advocate.

ARIZONA LIVE STOCK JOURNAL.—Tucson, Arizona Territory, Saturday, January 12, 1884, a folio of four pages, devoted to the live stock interest in the southwest, and adapted to the wants of the Ranchman and the general farmer, published weekly at \$500 a year in advance, by Cameron Bros., editors and proprietors. A new enterprise, very creditably gotten up, and likely to succeed, and ought to, for we rarely see in so limited a space, so much that illustrates the interests of its specialty.

"THE POULTRY WORLD."—We don't know that is necessary for us, or any one else, to mention anything more than merely the name of this excellent journal, for it is already so favorably and so wisely known, that our humble testimony could add little to its reputation or its character. But the volume for the present year comes to us in such a beautiful and appropriate external garb—picturing scenes so peaceful, domestic and truthful—that we feel it is but a beautiful door, to more substantial and varied treasures within.

The leading feature of the February number for 1884, is the illustration of poultry grounds, poultry houses, and poultry palaces, throwing the old-time "chicken-coops" entirely in the shade—indeed some of the gigantic breeds of the present would be out of place if confined in a "coop," (according to the average idea attached to a coop) it must need be a palace, a mansion, or a cottage at least. Devoted exclusively to poultry, and published monthly at \$1.25 a year, we have no hesitation in saying that it is the cheapest and best special publication on this continent, if not in the world. H. H. Stoddard, publisher and proprietor, Hartford, Conn.

WE owe an apology for the late appearance of the FARMER for the month of January, but it was beyond our individual control, and we have reason to believe it was subject to unavoidable occurrences in the office of publication. There appears to be two extremes in periodical publications, one of which is "running the matter into the ground," and the other like digging it out. If a journal that should be issued in the middle of the month, does not appear until the end of it, it is certainly unpleasant to its patrons; but when a journal for August appears on the 4th of July, it certainly cannot be regarded an epitome of the agricultural literature of the whole month, as well published the whole year at once.

THE AMERICAN APICULTURIST.—A journal devoted to scientific and practical bee-keeping. Vol. 2, No. 1, January, 1884. Published monthly by S. M. Locke, editor and proprietor, Salem, Mass. With a portrait of "Langstroth the Hub of America." This is a most excellent 24 page octavo, and has a large and intelligent number of contributors, besides an almost enviable list of advertisers, and those are the things that pay in the end. \$1.00 a year in advance.

PENNSYLVANIA STATE COLLEGE AGRICULTURAL BULLETINS, Nos. 6 and 7, containing feeding experiments, experiments with native potatoes, and a programme of a free lecture course on farm topics, before the Farmers' Institute, by Profs. Jordan, Buckhorn, Ewing, Osmond, Woodward, White, Bell, Barnard, McKee, Hazard, Groff, Huldickoper and Atherton; from the titles of which they ought to be of paramount use to the farmer and stockgrower.

THE CO-OPERATIVE POULTRY POST.—"A monthly illustrated journal, issued specially for poultry breeders and for circulation in co-operation with other periodicals." No. 1, Vol. 1. Published by H. H. Stoddard, Hartford, Conn., January 1884. Price, cents a year. A remarkably handsome four-page folio, two of which are entirely devoted to advertisements relating to poultry stock, implements and other interests. The other two pages are devoted to current poultry literature of a practical character. An excellent editorial on the subject of "co-operation," we reserve for future insertion in the FARMER, having only time and space at present for the editor's own.

SALUTATORY.

The *Co-operative Poultry Post*, in appearing to make its bow to the public, offers a more brief salutatory than is usual on a similar occasion; for the *Poultry World*, published at this office under the same ownership and management as that of the *Poultry Post*, is so well known that its character and history during twelve years offer a sufficient guarantee for the new paper, making extended introductory remarks unnecessary.

We shall not say that the publication of the *Poultry Post* in co-operation with agricultural papers "fills a long-felt want." Nearly every periodical prospectus for the past fifteen years has talked of "filling a long-felt want;" but there has not been but little quite recently a demand for co-operative publications. They are as yet few in number, but we inaugurate a system that is new, and one that is destined to soon achieve great influence and success.

Believing in the necessity and speedy popularity of the co-operative plan of publication, and in view of the certain truth that poultry breeding in America, both for fancy and utility, will in the future greatly exceed its past immense development, the *Co-operative Poultry Post* utters this brief justification of its existence.

THE AGRICULTURAL SOCIETY AND FAIR JOURNAL.—"For Farm, Factory and Fireside," Norfolk, Ohio, at 75 cents a year, and edited by J. F. Lanning, an 8 page quarto in very flimsy and badly printed colored coverings. Its specialty seems to be devoted to the interests of the fair and agricultural associations of the "whole unbounded continent"—"in a nut shell."

POULTRY NOTES

The regular meeting of the Lancaster Poultry Society was held Monday morning, February 4, Harry A. Schroyer in the chair, and the following members present: Messrs. Humphreyville, Schroyer, Rathfon, Rudy, Diffeenderfer, Long, Lippold, Lichty and Schum.

The minutes of the last regular meeting were read and approved.

On motion of Mr. Long the secretary of the society was instructed to correspond with breeders living in the vicinity of Lancaster and endeavor to dispose of the balance of the stock of the association to them. Mr. Lichty offered a resolution, which was adopted, ordering the renting of the room now used by the society for the present year.

The report of the secretary and treasurer was read, showing a balance on hand of \$15, and a motion of Mr. Long, Messrs. Diffeenderfer, Rathfon and Schroyer were appointed a committee to audit the accounts.

Adjourned.



HANSELL The earliest and most valuable Raspberry. Early Harvest Blackberry. Excellent and beautiful. Beware of cheap imitations. Send for details.

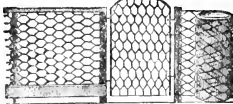
SMALL FRUITS in the United States, including all valuable varieties, new and old. Richly illustrated catalogue, selling what is planted, how to plant, and how to get and grow Fruit Trees and Plants. Filled with useful information on fruit culture. Free. Address, J. S. LOVETT, Little Silver, New Jersey. Introducing Outhart Raspberry and Manchester Strawberry.

Jan-31

SEED CORN!

For FENSLING and GREEN Fodder. For Blue, White and Yellow. Unusual. No seed-stalks and silk. Pure, Standard price by mail. Write for particulars and Catalogue. **WHEELER & WHITMAN, Little Falls, N. Y.**

Sedgwick Steel Wire Fence



The only good quality Wire Fence on the market, being a Strong Net-Wire Without Barbs. It will turn dogs, pigs, sheep, and poultry, as well as the most voracious animals without injury to either fence or stock. It is the best fence for farms, lawns, stock ranges and rail-roads, and very good for yards, parks, school lots and cemeteries. It is very easy to put up for material and will last a lifetime. It is superior to Board or Barbed Wire in every respect. We ask for it for trial, because it will save itself for you. The Sedgwick Fence, made of wrought-iron pipe and steel wire, defy all competition in strength, strength and durability. It is the best and cheapest All Iron Automatic or Self-Opening Gate, also Cheapest and Strongest All Iron Fence. **Revolving Wire Saws** and **Panel Saws**. Also **improvements** in **three HANSELL's excellent Wind Engines** for pumping water. **Improved** **vacuum** **cleaning** **machines** **and other** **best** **work**. For prices and particulars ask for our **new** **and** **improved** **catalogue** **free**. **SEDGWICK BROS., 117 So. Richmond, Md.**

Jan-17

DEITZ SEED CORN

Jan-20

SEVERAL HUNDRED VIRGINIA FARMS

CHEAP. Climate mild. Society and schools good. Taxes low. Write for catalogue. **C. D. EPES, Sottaway C. H., Va.**

DR. JOHN BULL'S Smith's Tonic Syrup FOR THE CURE OF FEVER and ACUE

Or CHILLS and FEVER, AND ALL MALARIAL DISEASES.

The proprietor of this celebrated medicine justly claims for it a superiority over all remedies ever offered to the public for the SAFE, CERTAIN, SPEEDY and PERMANENT cure of Ague and Fever, or Chills and Fever, whether of short or long standing. He refers to the entire Western and Southern country to bear him testimony to the truth of the assertion that in no case whatever will it fail to cure if the directions are strictly followed and carried out. In a great many cases a single dose has been sufficient for a cure, and whole families have been cured by a single bottle, with a perfect restoration of the general health. It is, however, prudent, and in every case more certain to cure, if its use is continued in smaller doses for a week or two after the disease has been checked, more especially in difficult and long-standing cases. Usually this medicine will not require any aid to keep the bowels in good order. Should the patient, however, require a cathartic medicine, after having taken three or four doses of the Tonic, a single dose of BULL'S VEGETABLE FAMILY PILLS will be sufficient.

BULL'S SARSAPARILLA is the old and reliable remedy for impurities of the blood and Scrofulous affections—the King of Blood Purifiers. DR. JOHN BULL'S VEGETABLE WORM DESTROYER is prepared in the form of candy drops, attractive to the sight and pleasant to the taste.

DR. JOHN BULL'S SMITH'S TONIC SYRUP. BULL'S SARSAPARILLA. BULL'S WORM DESTROYER. The Popular Remedies of the Day.

Principal Office, 531 Main St., LOUISVILLE, KY.

A HOME ORGAN FOR FARMERS.

THE LANCASTER FARMER,

A MONTHLY JOURNAL,

Devoted to Agriculture, Horticulture, Domestic Economy and Miscellany.

Founded Under the Auspices of the Lancaster County Agricultural and Horticultural Society.

EDITED BY DR. S. S. RATHVON.

TERMS OF SUBSCRIPTION:

ONE DOLLAR PER ANNUM, POSTAGE PREPAID BY THE PROPRIETOR.

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

Dr. S. S. Rathvon, who has so ably managed the editorial department in the past, will continue in the position of editor. His contributions on subjects connected with the science of farming, and particularly that specialty of which he is so thoroughly a master—entomological science—shows 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 householders.

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. Working 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 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

JOHN A. HILLS AND

No. 9 North Queen St., Lancaster, Pa.

LANCETRETH'S CENTENNIAL 1884 SEED 1884 CATALOGUE

"GARDENERS' COMPANION," PRICE TEN CENTS. The most complete and brilliantly embellished Seed Catalogue ever published, containing fifteen cents. The HUNDRETH YEAR, we publish this **Orange Guide for Garden and Farm.** If all sending us 10 CENTS in stamps, we mail a copy, and on orders for seed will give credit for that amount. Address: **DR. LANCETRETH & SONS, 21 & 23 South Sixth Street, PHILADELPHIA, PA.**

42-Branch Store—Delaware Ave and Arch Street.

SIBLEY'S TESTED SEEDS, FOR ALL CLIMATES, FOR ALL SOILS, ALL PLANTS.

All Tested for Vitality, and in Gardens for Purity and Value. CATALOGUE AND PRICE LIST of Vegetable, Flower and Field Seeds of all Tested Valuable Varieties, FREE.

Mail Orders promptly filled, making a Seed Store at home. **Reduced Prices to Clubs.** Send for Catalogue. **HIRAM SIBLEY & CO., Rochester, N. Y., Chicago, Ill.**

Jan-30

Where To Buy Goods
IN
LANCASTER.

BOOTS AND SHOES.

MARSHALL & SON, No. 12 Centre Square, Lancaster, Pa. Dealers in Boots, Shoes and Rubbers. Repairing promptly attended to.

M. LEVY, No. 2 East King street. For the best \$1.00 Dollar Shoes in Lancaster go to M. Levy, No. 3 East King street.

BOOKS AND STATIONERY.

JOHN BAER'S SONS, Nos. 13 and 17 North Queen Street, have the largest and best assorted Book and Paper Store in the City.

FURNITURE.

H. HARTSHORN, No. 13 1/2 East King st., (over China Hall) is the cheapest place in Lancaster to buy Furniture. Picture Frames especially.

CHINA AND GLASSWARE.

HIGH & MARTIN, No. 15 East King st., dealers in China, Glass and Queensware, Fancy Goods, Lamps, Burners, Chimneys, etc.

CLOTHING.

MEYERS & RATHFON, Centre Hall, No. 12 East King St., Largest Clothing House in Pennsylvania outside of Philadelphia.

DRUGS AND MEDICINES.

G. W. HULL, Dealer in Pure Drugs and Medicines Chemicals, Patent Medicines, Trusses, Shoulder Braces, Supporters, &c., 15 West King St., Lancaster, Pa.

JOHN F. LONG'S SONS, Druggists, No. 12 North Queen St. Drugs, Medicines, Perfumery, Spices, Eye Stuffs, &c. Prescriptions carefully compounded.

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C. H. AMER, No. 39 West King Street, Dealer in Hats, Caps, Furs, Robes, etc. Assortment Large. Prices Low.

JEWELRY AND WATCHES.

H. Z. RHODES & CO., No. 4 West King St., Watches, Clock and Musical Boxes. Watches and Jewelry Manufactured to order.

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JOHN A. HESLAND, 9 North Queen st., Sale Bills, Circulars, Posters, Cards, Invitations, Letter and Bill Heads and Envelopes neatly printed. Prices low.

BOWMAN & MUSSER,

Successors to

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Wholesale Dealers in



AT LOWEST POSSIBLE PRICES.

Fully guaranteed.

No. 202 EAST CHESTNUT STREET,

Opposite P. R. R. Depot.

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 pile 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-13)

GLOVES, SHIRTS, UNDERWEAR.
SHIRTS MADE TO ORDER,
AND WARRANTED TO FIT.

E. J. ERISMAN,

17 West King St., Lancaster, Pa.

(2-1-12)



Thirty-Six Varieties of Cabbage; 26 of Corn; 28 of Cucumber; 11 of Melon; 33 of Peas; 28 of Beans; 17 of Squash; 25 of Beet and 40 of Tomato, with other varieties in proportion, a large portion of which were grown on my five seed farms, will be found in my **Vegetable and Flower Seed Catalogue for 1882**, sent free to all who apply. Customers of last Season need not write for it. All Seed sold from my establishment warranted to be fresh and true to name, so far, that should it prove otherwise, I will re-fill the order gratis. The original introducer of **Early Ohio** and **Barbark Potatoes, Marblehead, Early Corn, the Hubbard Squash, Marblehead Cabbage, Phoenix's Melon**, and a score of other New Vegetables, I invite the patronage of the public. New Vegetables a specialty.

JAMES J. H. GREGORY,

Nov-6mo) Marblehead, Mass.

EVAPORATE YOUR FRUIT.

ILLUSTRATED CATALOGUE

FREE TO ALL.

AMERICAN DRIER COMPANY,

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Apr-14

\$72 A WEEK. \$12 a day at home easily made. Costly outfit free. Address: TREE & CO., Augusta, Maine.

C. R. KLINE,

ATTORNEY-AT-LAW,

OFFICE: 15 NORTH DUKE STREET,

LANCASTER, PA.

Nov-15

KNABE
PIANOFORTES.

UNEQUALLED IN
Tone, Touch, Workmanship and Durability.

WILLIAM KNABE & CO.
Nos. 204 and 206 West Baltimore Street,
Baltimore. No. 112 Fifth Avenue, N. Y.

dec-20

Special Inducements at the
NEW FURNITURE STORE

OF

W. A. HEINITSH,

in all kinds of

Furniture, Picture Frames, &c.,

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

28 East King Street,

Nov-15 LANCASTER, PA.

DR. JOHN BULL'S
Smith's Tonic Syrup,

FOR THE CURE OF

FEVER AND AGUE,
OR CHILLS AND FEVER, AND ALL MALARIAL DISEASES.

The proprietor of this celebrated medicine justly claims for it a superiority over all remedies ever offered to the public for the Safe, Certain, Speedy and Permanent cure of Ague and Fever, or Chills and Fever, whether of short or long standing. He refers to the entire Western and Southern country to bear him testimony to the truth of the assertion, that in no case whatever will it fail to cure if the directions are strictly followed and carried out. In a great many cases a single dose has been sufficient for a cure, and whole families have been cured by a single bottle, with a perfect restoration of the general health. It is, however, prudent, and in every case more certain to cure, if its use is continued in smaller doses for a week or two after the disease has been checked, more especially in difficult and long-standing cases. Usually this medicine will not require any aid to keep the bowels in good order. Should the patient, however, require a cathartic medicine, after having taken three or four doses of the Tonic, a single dose of BULL'S VEGETABLE FAMILY PILLS will be sufficient.

The genuine SMITH'S TONIC SYRUP must have Dr. JOHN BULL'S private stamp on each bottle. Dr. JOHN BULL only has the right to manufacture and sell the original JOHN J. SMITH'S TONIC SYRUP, of Louisville, Ky. Examine well the label on each bottle. If any private stamp is not on each bottle do not purchase, or you will be deceived.

DR. JOHN BULL,

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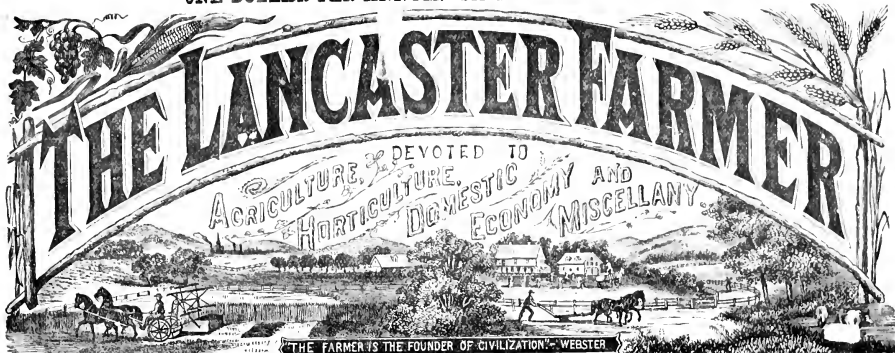
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LANCASTER, PA., MARCH, 1884

JOHN A. HIESTAND, Publisher

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

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On and after SUNDAY, JUNE 24, 1888, trains leave the Depot in this city, as follows:

WE TWARD.	LEAVE	ARRIVE
Pacific Express	1:35 a. m.	Harrisburg, 2:55 a. m.
News Express	6:25 a. m.	7:50 a. m.
Way Passenger	6:30 a. m.	8:30 a. m.
Mail Train via Mt. Joy	9:30 a. m.	10:30 a. m.
Mail No. 2 via Columbia*	9:35 a. m.	11:05 a. m.
Niagara Express	9:45 a. m.	10:55 a. m.
Hanover Accommodation	9:50 a. m.	Col. 10:20 a. m.
Fast Line*	1:05 p. m.	2:35 p. m.
Frederick Accommodation	1:45 p. m.	Col. 2:15 p. m.
LANCASTER ACCOMMODATION	2:30 p. m.	4:00 p. m.
Harrisburg Accommodation	2:30 p. m.	7:20 p. m.
Columbia Accommodation	7:30 p. m.	Col. 8:15 p. m.
Harrisburg Express	7:40 p. m.	8:50 p. m.
Western Express	11:10 p. m.	12:25 a. m.
EASTWARD.		
Mail Express	12:42 a. m.	Philadelphia 3:55 a. m.
Harrisburg Express	2:27 a. m.	4:25 a. m.
Fast Line	3:55 a. m.	7:50 a. m.
Harrisburg Express	8:10 a. m.	10:20 a. m.
Columbia Accommodation	9:00 a. m.	11:45 a. m.
Seashore Express	1:05 p. m.	7:20 p. m.
Johnstown Express	2:20 p. m.	3:05 p. m.
Day Express	5:25 p. m.	7:25 p. m.
Harrisburg Accommodation	6:45 p. m.	9:45 p. m.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 1:35 p. m., and runs to Frederick. Hanover Accommodation, west, connecting at Lancaster with Niagara Express, at 9:45 a. m., will run through to Hanover daily except Sunday. Harrisburg Express, west, at 7:40 p. m. has direct connection to Columbia and York. The Fast Line, west, on Sunday, when flagged, will stop at Downingtown, Coatesville, Parkersburg, Mount Joy, Elizabethtown and Middletown. The Johnstown Express from the west, will connect at Harrisburg on Sundays with Sunday Mail east, for Philadelphia, via Marietta and Columbia.

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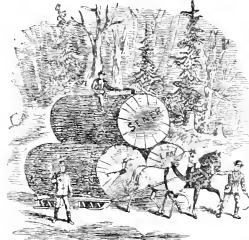
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The Lancaster Farmer.

Dr. S. S. BATHVON, Editor.

LANCASTER, PA., MARCH, 1884.

Vol. XVI. No. 3.

EDITORIAL.

MARCH.

"Now who, I ask'd, in this wild world
Will harken to my prayer?
A gentle voice borne on the breeze
Said 'see! look over there,'
He, with the helmet and the shield—
With glittering sword and crest,
The gentle south wind can command
And give thee peace and rest.
But he was fickle, and forsooth
Blew hot and cold together,
And oftimes rag'd in blasts that tore
The grass roots from the heather.
His visage now was decked with snails;
Anon 'twas cold and arch,
And in my wond'ring ears he breathed
'I'm blasting railing March.'"

This is the *third* calendar month, and, according to calendaric divisions of the year, the *first* spring month; although as a general thing, in our latitude, the month is far advanced before there is any very particular manifestation of spring—not much before the vernal equinox, and especially so, when our meteorological phenomena are overruled by the stern prognostications of the *ground-hog*.

MARCH, is derived from *Mars*, the god of war, and it frequently occurs that there is an elemental conflict between winter and spring, that continues the entire month. *March mud*, and *March dust*, are familiar characteristics of this month; concerning the latter, it has been said—"A bushel of March dust is worth a king's ransom." This was said because according to the Anglo-Saxon laws, the fine for murder was proportioned to the rank of the person killed; 10 pounds being the ransom of a common man, and 60 pounds the ransom of a king. MARS was originally an agricultural deity. As the reputed father of Romulus, he was held to be the progenitor of the Roman people, who paid him higher honors than any other god except Jupiter. He was also regarded as "divine fortitude" personified. As Bacchus, the evil demon, is the guardian power of Mahometanism, so Mars, or divine fortitude, is the guardian power of Christianity.

In old French and Prussian the name of this month is *Mars*; in German *Mertz*; in Spanish and Italian *Marzo*; in Portuguese *Marco*; and in Latin *Martius*; with modifications of these, when the word is used as a verb; namely, *Marche*, *Marcha*, *Marco* and *Marsch*.

"March, in like a lion, out like a lamb," is about as wise a weather prognostication as that which relates to Candlesmas and the "ground-hog," and perhaps much older; and the truth of which we may have an opportunity of testing the present season, if we understand clearly what is meant by coming in like a lion and going out like a lamb. The present season the month of March was ushered in decidedly cold, but it was not stormy, the preceding storm had subsided before the initiation of the month. If, how-

ever, this can be legitimately interpreted as coming in like a lion, then we ought to have a mild, lamb-like ending of the month; the certainty of which we can only know when the prophecy has been fulfilled, or has failed. March has always been a stormy month, owing to its being a transition month from winter to spring. It is often, from this pivotal position among the months, the scene of great meteorological changes, especially during the weeks preceding and succeeding the vernal equinox. During this month, usually, the active outdoor work of the farmer commences, and is pursued as vigorously as the weather will permit, if it had not already commenced in February.

What work ought to be done in the month of March on the farm, in the garden and the orchard will depend to a great extent on the character of the weather, and the latitude in which the farm is located. An important preliminary to spring is divesting trees, shrubbery and other species of vegetation of all chrysalids, cocoons and egg-clusters of noxious insects, remembering that this is about the last month in which this operation can be successfully performed, under considerations of *prevention*. As many farmers do the great bulk of pruning this month (unless February has been mild) they should at the same time make the removal of insect embryos as much of a specialty as any other object involved in pruning and cleaning. After plowing is commenced many insects will be thrown to the surface, in the form of *paper* or chrysalids; and also many hibernating larvae and pupas. If there are no birds, chickens and pigs to follow up the plowman and appropriate these animals they should be gathered by hand and be destroyed. This work is fast becoming one of the essentials of farming, if a profit is expected to be realized—it is one of the concomitants of agricultural progress.

MORE OF THE GROUND-HOG.

It is rather unfortunate and misleading that the term "Hog," should have ever been applied to this animal, especially now, that his weather prognostications have been so amply and so emphatically verified. We say *misleading*, because only a few days ago, in a local "squib" of one of our dailies, he was alluded to as a PACHYDELM. No doubt, through the malassociation of names the writer may have supposed him to belong to that thick-skinned group, because the common hog (*Sus*) belongs to it; but this is a mistake. The ground-hog, or more properly, "Marmot," is a ROBENT. Besides, there is an African Mammal called "Ground-hog" (*Myrmecophaga capensis*) which belongs to the sixth order of CUVIER'S classification—the EDENTATA—because they have no teeth in front; and, as the generic name implies, live on ants. By virtue of its scientific classification the marmot finds itself in company with the rats and mice, the gophers, the squirrels, the hares, the muskrats, the porcupines, the

beavers, the chinchillas, and a large number of others, both on the Eastern and Western Continents, all of which belong to CUVIER'S fifth order, ROBENTATA, or gnawers. Whereas, the PACHYDELMATA constitutes the seventh order of CUVIER, and includes the elephants, the tapirs, the hogs, the peccaries, the hippotami, the rhinoceri, the horses, zebras, asses, etc. Although it cannot be said that the marmot belongs to as highly organized and intelligent an order as the elephant, the horse, etc. do; yet when it comes to forecasting the weather, in comparison with them, he quite "takes the rag off the bush," and especially this year, he seems to have taken both "rag and bush" together. Although we would not extravagantly exalt the marmot for his presence, yet history records the deification of a Roman Emperor's horse, far far less than that. True, a local poet has embalmed his memory in verse; but, if he was not such a consummate nuisance to our farming population, we should not hesitate much to accord him a monument, or a situation in the Signal Service of the United States. We merely wish to place him in scientific classification where he properly belongs. He doesn't belong to the thick-skinned order of animals, hence his susceptibility to meteorological influences.

J. B. G.

We wish we could reply intelligently to our correspondent J. B. G., but as he alludes to insect pests of last season, of which he never sent us specimens, we can only guess at what he means—indeed, if we really *knew*, or had before us, the insects that destroyed his wheat, his currants and his grapes, the thoughts suggested by his communication could only find expression through a clever sized volume—200 pages octavo at least.

To show how indefinite the term *worm* is, we have only to reflect that nearly all insects, at one period of their development are worms, of these worms *five* well defined species attack the roots, *four* attack the canes or branches, *three* attack the fruit, and *thirty five* species attack the leaves and the flowers of the grape alone. The currant and gooseberry have *three* species attacking the canes or stems, *four* attacking the fruit, and *twelve* the leaves. Now, here are *sixty six* distinct species of insects that infest the grapes, the currants, and the gooseberries; and we enumerate them here in order that our correspondent may have an idea of the difficulty of prescribing a remedy for any of them, without knowing anything about them, except that they are *worms*. And these *sixty six* species are not spontaneous productions. Many of them have been discovered and described long years ago; all have evolved from eggs that had previously been deposited by the parent females. The very fact that, to our correspondent's apprehension, the worms on his small fruits and grains came suddenly, and full grown, evinces that in their earlier

periods of development they must have been entirely overlooked. On one occasion a lady called our attention to a rose bush, which she alleged became suddenly infested by the "Rose-slug" (*Selandria rosea*) 'only the night before,' as she said, in that in fact they were there ten days before, only they were too small to be readily detected. We have heard people make the same assertion in reference to the "sudden appearance" of the larva of the "White Cabbage Butterfly," (*Pieris rapae*), which had evaded their observation on account of its small size and green color. The fact is, young and sharp-sighted should interest themselves in looking up these insect pests; "three score and tens" and "octogenarians" are very liable to overlook them when small.

Perhaps there is not a more pernicious persistent, and prolific pest to the currant and gooseberry, than the larva of the "currant and gooseberry Saw-fly," (*Nematodes ventriosus*) which was imported into this country years ago from England, or the continent of Europe; and we "guess" this is the one to which our correspondent specifically alludes. Now, this insect produces two broods at least, during the season. They hibernate in the larva or pupa state—or both—during the winter, and the fly appears early in the spring, or as soon as the currants and gooseberries are in foliage. The males are black and yellow, the females a honey yellow and twice as large as the males, and all have four transparent wings. Early in the morning, or during cool days they are somewhat sluggish, and may be easily captured, but they must be looked for—we have captured hundreds of them.

That is remedy No. 1, and is largely preventive. If this has not been attended to, the females will deposit their eggs on the under sides of the leaves, and there will be plenty of worms, but so small at first as to evade detection, but their presence is usually indicated by the small round holes cut in the leaves. It is true there are several parasites that prey upon the larva, but it is still necessary to use an artificial remedy, and the most common, and perhaps so far the best is "White Hellebore." An ounce of hellebore to a common pail of water, and the bushes freely sprinkled with it. This will give them (that is, the worms) their quietus within an hour or two. They can also be hand-picked, but the operation is not a pleasant one. If none of these things have been attended to, then when the larva mature they will come down from the bushes and spin an oval shaped cocoon among the leaves, grass or other rubbish under the bushes, where they may be gathered and burned. This usually occurs in June. If these cocoons are not destroyed, from them will evolve an increased and more destructive brood in July and August: and these when matured, if permitted, will go into the ground and remain there all winter and produce the first brood the following spring. There it is in a "nut-shell." It is altogether useless to indulge in complaints; we must become aggressive: We must meet the enemy, if we expect him to be "ours."

We have also a native species of saw-fly, that infests the currants and gooseberries, but it is not so common, so numerous, nor so destructive as the foreign species, nor is it so large, and is darker in color. Its larva is

plain green, and is without the black dots which characterize the larva of the foreign species.

As to the grape vine we have noticed two or three insects that have been markedly destructive to the foliage. The most numerous was the "Grape-leaf Flea-beetle," (*Graptochrysa chloris*) of a steel blue or greenish color. It hibernates in the soil during the winter, and comes forth in early spring, and then destroys the leaf-buds. Later in the season the larvae appear and destroy the foliage. There are several broods during the season, for we have seen the mature beetle and the larva in different stages of growth on the grape vines at the same time. When the larva is matured it leaves the vines, goes into the ground, is transformed and comes forth again a full-fledged beetle, and repeats its history. But as there is then an abundance of foliage, they are not nearly so destructive as the first brood. The larva is a small six-footed brownish worm, sparsely covered with tubercles and bristles.

The remedy for these insects in the beetle state is strewing the ground beneath the infested vines with air-slaked lime in autumn, or hand picking them in the spring, and in cool mornings the latter is not difficult to accomplish, but in the heat of the day, like the Irishman's flea, "When you put your finger on him he is not there," being a very nimble leaper.

Both the larva and the beetle may be destroyed by sprinkling the vines with a teaspoonful of Paris Green stirred into a gallon of water—those proportions in any quantity. The two other insects alluded to are the "American Procris" (*Procris Americana*) and the "grape-leaf saw fly," (*Selandria vitis*) and they both may be destroyed by the same remedy as the foregoing. As the first spins its cocoon on the leaf, its destruction may be effected much easier than the last named, as it enters the ground, and emerges in spring. The speculative and philosophical portion of our correspondent's letter, we cannot reply to at this time. The worm that attacked the wheat was probably the "White-bud army worm," (*Lucania abilitinea*.)

SAN JOSE SCALE.

VIRGINIA, Nev., Feb. 13th, 1884.
 PROF. S. S. RATHVON, Lancaster city, Pa.
 Dear Sir: Our mutual friend, Mr. J. S. Stackhouse, requests me to write you these few lines and send you the enclosed insect, called the "San Jose Scale," as described in the book called "Injurious Insects of the Orchard, Vineyard," &c., by Matthew Cook, dedicated to Mary E. Gregory, of Sacramento City, California.

This house or scale bug infests nearly all the fruit trees, shrubs, fruit and vegetables in Santa Clara and some other counties of California to an alarming extent, and Mr. Stackhouse as well as myself would like your opinion as to some mode of exterminating the same. The enclosed insect, as you find, is attached to a stem or stalk of tule.

If it is not asking too much please drop Mr. Stackhouse or me a line.

Respectfully yours,

JOHN GILLIG.

Your favor and inclosed insects were duly

received. Although we are acquainted with quite a number of scale insects infesting plants, trees and shrubbery in this region of country we know little—except inferentially—about those infesting vegetation in Nevada or California, and your specimens are the first that have been sent us from beyond the boundaries of Pennsylvania for some years. We have never seen the work on "Injurious Insects," written or published by Mr. Cook, but we have before us at this writing a copy of the *Sacramento Weekly Union*, in which Mr. Cook publishes a lengthy illustrated paper on "Our Insect Enemies," but its usefulness to anybody outside of those States is sadly marred by the almost total absence of scientific names.

The entomological fauna of the Pacific States differs so much from that of the Atlantic States—both generically and specifically—that the ignoring of their scientific names, and substituting only the common local names, throws very little clear light upon the subject, unless they are very skillfully illustrated with colored figures, perhaps more than can be said of the illustrations before us.

Mr. Cook seems to be very confident that the farmers of California are fully competent to exterminate all the noxious insects of California, and not only can do so, but have done so. Hear him. "It can be said, without fear of contradiction, that the fruit-growers of California have by patient investigation and thorough work practically demonstrated that they are masters of the situation."

But that is not all, he still more emphatically says: "It can be further stated, that the enterprising fruit-growers of this State have done more intelligent successful work in their warfare against all kinds of insects since the first of January, 1881, than has been done in any other portion of the United States, or any other part of the world in the last fifteen years."

This may be so, and, for the sake of humanity, we wish it were so if it is not so. But we are apprehensive that ten years hereafter Mr. Cook will not be so sanguine as he seems to be now. We agree with him, however, in this, that if ever such an end is accomplished it must be through means similar to those he mentions, namely: Intelligent, energetic, persevering and simultaneous manipulation.

Either the insects of California must be very unsophisticated, or her fruit-growers a very "sharp" kind of people; and our fruit-growers very dull or indolent, and our insects 'sharp;' for the warfare between the latter has now existed for more than thirty years, and still the insects have not been subdued, notwithstanding the literature on the subject has been profusely and widely diffused.

Mr. Cook's main remedy is, "Washing or spraying the infested trees, *where dormant, with a solution containing one pound of concentrated lye to each gallon water, and spraying in summer with whale-oil soap and sulphur mixture." Under certain circumstances "Paris green" is recommended. We find it difficult to exterminate scale insects here with

*We are doubtful here, whether the term "dormant," relates to the plant or the insect—perhaps to both, as both are usually in that condition during the winter season.

those remedies, unless they are applied about the time the young emerge from the eggs, and scatter over the trees and shrubs. Even a dashing shower of rain, at that particular period, will, and every year does, destroy many millions of them; for, if a perfect insect was matured from every egg developed, they would soon destroy all succulent vegetation, or any plant that yielded sap. Mr. C. mentions the "so-called San Jose scale," but does not illustrate it. His description, however, is too meagre to afford much help towards a specific identification. The insects you enclosed, attached to the stem of "Tule," seem to be a species of *Aspidiotus*; (perhaps, *A. acantii*) the stem of the plant, however, as well as the insects themselves, are pressed down so flat, and have become so thoroughly dried, that it is difficult to determine their species. In this latitude, June and July are the months in which the young scale insects are excluded from the eggs, but in California or Nevada this evolution would probably occur at an earlier period. The visible scales are the mother insects—the males of many species do not survive the winter—and they are usually impervious to any liquid remedy. When they are lodged on any plant that is worth preserving, or where they are accessible, rubbing them off with the finger, or a stiff brush, is the surest remedy. Spraying, as a general use, is of little value except it is done at the proper time indicated above. We have found oil very efficacious in removing scales from young pear, apple, or cherry trees—it closes the pores and kills the insect.

The insects commonly called "scales," "seals," or "bark-lice," all belong to the great *Coccus* family. (*Coccidae*) of which *coccus* is the typical genus, and there are many species of them—hundreds at least. When found on trees in late winter, or in early spring, in the form of a scale, there is usually little or no vitality in them. We then have, generally, only the shrivelled and shrunken, or dead body of the female before us, and her main function then is merely a protecting covering to the eggs which are concealed beneath her body. If this shield or scale were not impervious to fluids it would afford insufficient protection to the eggs. This impervious quality resists all moisture, and would also resist any liquid remedy, for no matter how long, how cold, or how wet a winter is, it has no injurious effect upon these scales. When the young are excluded from the eggs they are very minute objects, in many species microscopic. Some of them are very nimble pedestrians, but so very delicate in their organization that perhaps not two survives out of every hundred, but they are very numerous. On one occasion we counted 500 young that issued from a single scale of a species of *Pulvinaria* (the maple scale,) and over 1000 from an oak scale. These tiny beings disperse, and locate themselves on the young wood, sink in their little beaks, and become stationary, subsisting on the sap. Nearly all that thus locate themselves are females. The males generally are winged, and do not become scales. After fertilization they perish. The females ultimately become degraded into a mere scale, losing all their members but their sucking tubes.

The case is, however, different with the

"Red Scale of California," the male of which also forms a scale, although much smaller than that of the female, nor is that species so prolific as some of ours in Pennsylvania: from 20 to 25 being the number of eggs. The different genera have different developmental histories, in many of which, the males are not yet known. The apple and pear bark-lice, or scales, are somewhat of this latter character, especially so far as it relates to their prolificacy.

In mentioning oil, as a remedy for the destruction of scale insects, we by no means would recommend it indiscriminately. Almost any kind of oil would certainly kill the insects if it came in fair contact with them, but some kinds of oil would also be injurious to the trees or plants, and among these are undiluted cod oil, or kerosene; and, we have been credibly informed that linsed oil has an injurious effect upon the trees. After the volatile portion of linsed oil evaporates a gummy envelop invests the surface on which it is applied, closing up the pores and preventing respiration, causes emaciation and final death of the plant, or at least the oiled portion of it. Oil of turpentine, or spirits of turpentine, no doubt, would kill every insect it came in contact with, but we are informed that this is also injurious to vegetation. If a single drop were applied to each insect with a camel's hair pencil, nothing would be surer, for we experimented with turpentine successfully many long years ago, merely for the fun of the thing. But, as a remedy, it might be like one said to have been disposed of by an enterprising itinerant vender at a militia training many years ago. It was for the destruction of fleas, and sold like "hot cakes." At the end of the sale an inquisitive old gentleman, who had invested fifty cents in the "dust powder," inquired how it was to be applied. He was informed that the application was very simple and sure as simple. All he had to do was to seize the flea back of the neck, choke him, and when he opened his mouth he was to throw into it a small quantity of the powder. "Well, but," he inquired, "mightn't I just as well kill him while I have him in my power?" "You can do as you please about that," was the vender's cool reply. If we can get near enough to a scale insect to apply a drop of turpentine on the end of a camel's hair pencil it would be just as efficacious and much cheaper to rub off the insect with the finger nail, being all a matter of choice.

The Agricultural Department at Washington has for some time been experimenting with an emulsion of kerosene oil with satisfactory results. One gallon of kerosene and half a gallon of cow's milk, thoroughly agitated until it has the appearance of soft butter. One pint of this mixture, with one and a half gallons of water, adding the water gradually and stirring vigorously until all is added. Applied through a garden syringe or pump this emulsion is claimed to be better than any alkalis solution.

EXCERPTS.

OUR stock of knowledge of the animal kingdom is increasing very rapidly. The number of mammals is now estimated at

about 1,200, of birds, 7,500, of reptiles, 2,000, and of fishes, 10,000, making a total of about 20,000 species belonging to the higher classes. Near the close of the seventeenth century these groups of animals—now known as vertebrates—were thought to include a total of about 1,600 species. As naturalists have become familiar with the invertebrates their list of these creatures has become enormous. Of beetles alone the museums of the world contain over 100,000 species, while the best estimates place the total number of distinct forms of insects at more than 500,000. The whole animal kingdom is believed to embrace about 1,050,000 species.

BLENDING OF COLORS.—The following table is vouched for by the best authorities as the best for producing correct colors. The first named color and the others follow in the order of their importance. The exact proportion of each can only be determined by experiment.

Buff—Mix white, yellow ochre and red.
Chestnut—Red, black and yellow.
Chocolate—Raw umber, red and black.
Claret—Red, umber and black.
Clopper—Red, yellow and black.
Dove—White, vermilion, blue and yellow.
Drab—White, yellow ochre, red and black.
Fawn—White, yellow and red.
Flesh—White, yellow ochre, red vermilion.
Freestone—Red, black, yellow ochre and white.
French Gray—White, Prussian blue and lake.
Gray—White lead and black.
Gold—White, stone ochre and red.
Green Bronze—Chrome green, black and yellow.
Green Pea—White and chrome green.
Lemon—White and chrome yellow.
Limestone—White, yellow ochre, black and red.
Olive—Yellow, blue, black and white.
Orange—Yellow and red.
Peach—White and vermilion.
Pearl—White, black and blue.
Pink—White, vermilion and lake.
Purple—Violet, with more red, and white.
Rose—White and madder lake.
Sandstone—White, yellow ochre, black and red.
Snuff—Yellow and Vandyke brown.
Violet—Red, blue and white.—*Ec.*

During the year 1883, 850 head of polled Aberdeen-Angus cattle were imported from Scotland.

It is estimated that the dairy region of which Elgin, Ill., is the centre, produces 20,000,000 gallons of milk a year.

A FARM of 100 acres of good arable land should keep at least six work horses, twenty milk cows and twenty hogs.

The sales of thoroughbred Aberdeen-Angus and Shorthorn cattle in Scotland last year footed up \$19 head, for which \$143,000 was paid.

The average price of Shorthorns in 1881 was \$158; in 1882 it was \$182.10, and in 1883 it was \$205.56, with prospects for it being still higher for 1884.

Less grain and more grazing tend to a better development of frame and muscle than

when corn is fed to hogs exclusively. Build the frame first, and lay on the fat afterward.

At a recent sale of fine poultry in England, 218 birds were sold, and the best prices made were: For dark Brahma cockerel, \$25; partridge Cochin cockerel, \$25; ditto pullet, \$15-75; buff Cochin cockerel, \$26.

YOUNG chicks that are subject to weakness in the legs should receive a small allowance of fine bone-meal in the food. Weak legs come from forced growth, high feeding and close confinement, but it is not necessarily dangerous.

THE beef of Hereford cattle is peculiarly tender and fine grained. For quantity as well as quality of meat they are not excelled. The capability of the breed as quick feeders and economical producers of meat is unquestionable.

THE greatest enemy to bees in winter is man himself. After bees have once clustered for their winter hibernation it is almost sure death to disturb them. It sometimes pays to bank hives with snow, being careful not to disturb them.

THE earlier in the season that land plaster or gypsum is sown on clover the more certain it is to produce good results. Some experienced farmers sow it on the last snow and insist that to do most good it should be applied before spring rains have passed.

DAIRYMEN near Lockport, N. Y., use nearly all the milk in cheese making, as the butter-milk, when returned to the skimmed milk, makes an improvement in the quality of skimmed milk cheese. This is nearly identical with the Vermont system.

THE London Dairy show two or three years ago made tests of the several breeds of cows to learn what per cent. of the milk of each was butter, with the following results: Ayrshire, 5.57; Jersey, 4.74; Guernsey, 4.86; Kerry, 3.73; Britano, 4.19; Holstein, 2.27.

THE question as to how many bees can be kept in one place is not readily determined. In some parts of Germany several thousand colonies are frequently found in a single compact neighborhood, while in this country a much smaller limit is sometimes given.

HYACINTHS IN GLASSES.—The following maxims are for the use of those who grow hyacinths in glasses. Look for weight as well as size in bulbs: use the single kinds only, as they are earlier and hardier; set the bulb in the glass so that the lower end is nearly, but not quite, in contact with the water; use rain water; do not change the water, but keep a lump of charcoal in the glass; fill up the glass as fast as the water evaporates; keep them in the dark for at least six weeks, then remove by degrees to full light and air; the more light and air after that time the shorter the leaves and spike and the brighter the colors of the flowers.

STOCKING SUPPORTERS.—When buying elastic ribbon for children's stocking supporters, procure a fine webbed brand; one pair of these will outwear several of the cheaper ones. Do not put button-holes in the elastic, but hem the ends and sew on loops of narrow white tape. Make the supporters long enough for the shortest stockings, and add a couple of loops of tape two inches apart

on the upper end for use with longer hose. If at any time it is necessary to allow the supporter to encircle the leg, procure the ribbon with fluted edges, as that is much more elastic than any other kind, and will offer less hindrance to circulation.—*Country Gentleman*.

NOVELTIES in articles for the writing table are always in demand. Here is one that will be new to many. The case is of leather or silk, and on it is pasted a sheet of writing paper, the right-hand corner of the front page being turned back, just to show that it is double, and to avoid the stiff look that is ruinous to decorative work. Across the paper, but rather to the left, an envelope is thrown carelessly, face downward. This allows the seal to be visible; the postmark is imitated with pen and ink. On the paper there is some writing, and on the top left-hand corner there is a bird and some foliage. Altogether it is a clever idea which is worth knowing, for it could be carried out in many ways without the meaning of the decoration being lost sight of.—*American Queen*.

AT the Toronto Fat Stock show the Short-horn Champion, weight 2350 pounds and 1,342 days old, won the special prize, a cup valued at \$100, as best of any age.

HENS will lay as well when not in company of the male as when they are kept together. If eggs are not desired for hatching it is an advantage to keep them separate.

THE want of pure and fresh water accounts in many instances for the lack of eggs during the winter season. Fowls require a constant supply of water, and without it will not lay.

IN California considerable fruit is canned in the orchard where it grows, the canned product bearing transportation better than the fruit which has to be shipped even a short distance from the factory.

IT has been noticed by members of the Kansas State Horticultural Society that insects injurious to fruits are more numerous about the railroad stations. The average loss in that State by the depredations of insects was 24 per cent.

A FROST-PROOF vegetable house is described as made with walls fifteen inches thick, double boarded, the space between the boards being filled with sawdust. The ceiling is also boarded, with about ten inches of sawdust between the boards.

NEXT to Australia we are now producing more clothing wool than any other country on the face of the earth. In 1876 our wool product was 115,000,000 pounds, while the present year it will not be far from 350,000,000 pounds.

ACCORDING to Professor Sheldon, of England, cheese factories have not made themselves a howling success over there. A few creameries have made out to struggle along, but it is evident the English farmer does not take kindly to them.

ACCORDING to Professor Stockbridge, the moisture constantly being given off by the soil is condensed at night by the cooler air, and so forms dew. This is contrary to the old idea that dew falls from the air, or is the moisture of the air condensed by the cold, damp earth.

THE *American Cultivator* says that if barley has not germinated the fact of its having been slightly stained by wet is no actual detriment whatsoever. The grain is not really injured and ought to bring to the farmer just as much as the bright samples of equal plumpness.

THE eggs for hatching at this season should be collected often. Extreme cold is very injurious to them, and many a failure to hatch may be traced to neglect in this respect. When the broods are off the nests the hens should have warm locations, if possible, in the sunlight.

NOW is a good time to cut down trees planted so close to the house that they shut out fresh air and sunlight.

To clip or not to clip, is the question. Suppose you do clip the covering from your horse's body, why clip it from his legs! The legs are not blanketed.

PROF. STOCKBRIDGE says: "It is not good practice to water stock immediately before, or after feeding." When would the professor water stock?

MR. J. S. WOODWARD contributes "A Study of Feeding Stuffs," to the *New York Tribune* advising farmers to feed more liberally of linseed meal, and thus make much more and richer manure and keep their stock continually thriving. This means more acres and better yields and larger profits in farming.

A NOVEL but permanent label for trees may be had by cutting the required letters in a smooth place in the bark. It is not necessary to cut out a strip of bark as we used to do in idle days when we were boys, but simply draw the cutting point of the knife through the bark in such lines as to represent the letter wished.

IT is nice to have new potatoes from the garden a little ahead of time and of the neighbors. Two or three weeks can be gained by starting them in a box under the kitchen table. Bury a peck or half bushel in moist earth and let them sprout; plant out as soon as the ground is fit. Use the seed end of the potato as it is a little earlier in ripening.

A GREAT many people will be fooled, we think, who have subscribed for a certain bogus household journal published in New York City which is floated by means of a lottery. Set any paper down as a fraud that goes into the lottery business. Subscribers will be sure to draw blanks and the paper will prove worse than worthless—vicious.

A SCIENTIFIC contemporary says that "an improved form of stock barn has been patented," &c. In this matter of "agricultural patents" the line should be drawn somewhere, and we suggest that it be drawn at "stock barns." Only one step more and we'll have a patent clapped on the stock itself.

SEEDS when stored should always be carefully labeled, the variety, when obtained, and in what year grown, plainly noted on the label. Look over your old seed. It may be good as new and it may be worthless. Onion seed is not good for much when two years old; parsnip seed also will seldom germinate after the first year. Pea seed retains its vitality two years; the same is true of pepper seed and carrots ditto. Celery is good for five years but we would a great deal rather

have one-year-old seed. Radish and lettuce seed is reckoned to be good for three years, tomato for seven years, turnip for four years, cabbage the same, and beet seven years. Don't throw away good seed.

CONTRIBUTIONS.

FOR THE LANCASTER FARMER.

DEAR SIR: Is there not some way of relieving us of the many pests of new or strange insects, which last season destroyed all the leaves on our currant bushes, grapevines and out of the ears of wheat. The currant worms came in countless numbers, and apparently full grown, and at once commenced eating the leaves, and did not depart until not a single leaf was left on currant or gooseberry bushes. The worms on the grape leaves, I had frequently seen on a few leaves, which I generally put under foot. These worms, bred from eggs laid on the underside of leaves, and kept on breeding all the time till frost ended their work. They were so numerous as to eat off all the leaves on some large vines, while on other vines most of the leaves were eaten, and had not the frost put an end to them, would have taken every leaf, as there were still plenty of young ones, and even eggs to hatch.

The worms that cut off the ears of wheat, I believe were also never known before last summer. A person who watched their operations, said they crawled up one stem, bit off the ear, then crawled down and up another stem, and operated in that way, apparently not eating anything, but appeared to be solely bent on mischief. Those working in the harvest fields said the ground was lying full of cut-off heads of wheat.

We have it recorded in holy writ—that Noah, after taking his sons and sons' wives into the Ark, that he then took of the beasts of the forests, and the birds of the air, into the Ark in pairs to replenish the earth after the waters subsided, where the lion and the lamb laid down in peace and harmony; did he also take these insects into the Ark? And if so, where did they hibernate these thousands of years, to come on us all at once. Or, are they an evolution of some still more inferior insects, as C. Darwin, and the evolutionists of England says: Man is a descendant of the monkey. Were monkeys on earth prior to Adam? Our animals are all, we might say of a higher or improved order to what they were in their original state. Our luscious apples of many varieties all originated, it is said, from the wild and austere crab. Our luscious pears from the Noah pear, etc., and what an immense variety of beautiful double flowers, which in their natural or wild state were all single. Thus it appears as if there was a gradual evolution to a higher type, both of animals and vegetables, giving some colors to the idea of evolution.

Then again we might ask, are these insects a new and recent creation? And again, where did they come from; did they fall from the clouds like little toads after a thunder shower? Curculios last season found no plums, but these insects are not choicy. If there are any black knots on plum trees it will suit them as well as the fruit; indeed, I believe they

would deposit their eggs in rotten wood with a fair prospect of the brood coming to maturity. Of course we know these questions can not be answered, but they may create thought, and thought is likely to lead to investigation; and when we think about matters and things we are very likely to receive and retain new ideas, and thus making discoveries become wiser if not better men.

A writer, I believe in the *London New Yorker*, states that he last year used a preparation of asafotida and sulphur in water, with which he sprayed or syringed some of his plum trees; the result was that those trees bore heavy crops of plums, while those trees not so sprinkled bore no fruit; but he does not give the amount of the articles, so we will have to try it in different proportions, to apply it after a rain, &c.

Another writer says: To drive away the currant worms take a gill of kerosene and a gill of sour milk, churn it with an egg-beater into a homogenous mass; then a spoonful to a pail of water, sprinkled over or syringed on the currant bushes, will either kill or drive away the currant worms. If so it will no doubt also disturb the grape worms, so we must be "wide awake" if we want any currants, gooseberries and grapes.

Should these pests continue, and even increase, they will certainly kill off our currant bushes and grapevines. It is said the leaves of plants are its lungs, so if the lungs are destroyed the plants cannot breathe, and consequently must die. We should regret the loss of currants and grapes, as we are still fond of currant pies and a little wine occasionally for good health. But should the wheat insect increase and continue its deprivations in our wheat fields that would be even the worst of all. I suppose we could manage to exist without currants and grapes, but without bread it would not be very pleasant to sit down to the table. May these fears or croakings be only imaginary is the hope of your correspondent.

J. B. G.

FOR THE LANCASTER FARMER.

BROOKVILLE, O., March 10, 1884.

EDITOR LANCASTER FARMER—Sir: The most noteworthy circumstances in the direction of scientific education of the farmers, of this State, is the organization of Farmers Institutes, in each county in the state, by the State Board of Agriculture. Some of the most scientific agriculturists of the state lectured at these institutes. At Dayton, the secretary of the board lectured on the civilizing effect of occupations—he contended that, militants and butchers, were much less humanized than agriculturists and horticulturalists, of course there is a good deal in that.

The greatest interest was manifested in the lectures on entomology, especially that which related to noxious insects. These lectures were delivered in such a way, that every one who heard them, was interested in them; the illustrations were highly magnified. The evolutions from the larva to the perfect insect, were nicely illustrated. Farmers are beginning to understand, that to be successful in destroying insects, they must first learn the natural history of them. They have finer opportunities to study this science, than anyone else, to them it ought to be a pleasure as

well as it is a profit. As the study of the natural history of insects requires a great deal of patience and perseverance, this will habituate them to apply themselves persistently to the study of other philosophical phenomena.

At these institutes, lectures are delivered on other subjects, that pertains to the matter in hand.

February was unusually blizzardy; on two different days during this month the mercury was down to zero; it was a good thing for farmers that the ground was covered with snow during that time. We had another splendid display of the "red light." The hydrographical condition of the atmosphere is now and has been almost to the point of saturation during the existence of these lights. If we understood the correlations and conservations of forces we would understand this and many other natural phenomena much better than we do. Farmers have always been much interested in the phenomena of the heavens. The "signs" of the moon used to be a great thing among farmers.—C. Gish.

ESSAYS.

THE CULTURE, MANUFACTURE, TRADE AND CONSUMPTION OF TOBACCO.*

Tobacco first became known in Europe by its discovery in America, and it is at present grown in every part of the world, except in the frigid regions, and consumed by every civilized and barbarous nation on the globe. It is the popular plant of the world.

Humboldt in his personal narrative states that the natives on the Orinoco have cultivated it from time immemorial; and the Hindus, Persians and Chinese have used tobacco from an era so remote as to have no fixed date. It is certain, however, that it was not introduced into Europe until the latter part of the fifteenth century, and that smoking was not general until after the discovery of America.

The virtues ascribed to it at that time were most ridiculous. It was by some considered a panacea for all ills.

"Sleep it procures, our anxious sorrows lays,
And with new flesh the naked bone arrays,
No herb hath greater power to rectify,
All the disorders in the heart that lie,
Or in the lungs, herb of immortal fame!"

But, on the other hand, its introduction was violently denounced from the throne, the pulpit and the rostrum as a hellish, devilish and damned stuff, ruinous to body and soul. But these fulminations against it availed nothing, as the people were fascinated with it, and would smoke, chew and sniff it. At last the governments of the world in their wisdom abandoned persecution and adopted systems of revenue, and now derive more substantial aid in their treasuries than from any other source, with perhaps a few exceptions.

The cultivation of tobacco is an important branch of agricultural industry in the United States, the West India Islands, Europe, and in many other parts of the globe. The number of persons engaged in the preparation and

*Read before the Lancaster County Agricultural and Horticultural Society, February 3, 1884, by C. L. Hunsacker, Esq.

manufacture of the plant, if we commence agriculturally in its first production, and carry it up to the last stage of its progress to the hands of the consumer is of immense value to every government and people engaged in it.

In our country, and some others, the cultivation of tobacco is free and open to every farmer, who engages in it. But not so in a large majority of the European governments. In many of them it is a strict monopoly as in Austria, farmed out to the tobacco growers, manufacturers and traders, and in all of them, directly and indirectly covered with taxation, deriving therefrom a large revenue.

The increase of the use of tobacco of late years in America, Europe, and other countries has been immense, so that the subject of tobacco has come to be one which deserves the consideration and attention of every government and country, both in respect to its cultivation and to its use.

The annual value of all the agricultural products of the United States is about \$5,000,000,000, an enormous sum, and if cotton and tobacco be left out of the calculation, the greater portion of these products is consumed at home, of this amount less than \$300,000,000 in value, has been exported to foreign countries, amongst which tobacco is one of the principal items.

Tobacco before it reaches the consumer is much adulterated by various substances injurious to the human system. Cigars are the purest form of tobacco, even though the tobacco be poor. No youth, no one not full grown, should use tobacco in any shape. The most usual fraud among tobacco dealers is moisture, which has the effect of augmenting the weight.

The production of tobacco is so strictly enforced under the government monopolies in Europe that the planters are allowed only a certain space of ground, or in others only so many plants for cultivation; and the governments furnish the seed, and everything is done under government surveillance, which expects and does receive all the profits.

Under such circumstances the production is largely curtailed. Besides, there are other causes which often operate against the profitable production of the crop of tobacco. Bad weather, too wet, too dry, early frosts, poor soil, damaged seed and weak plants; slovenly cultivation, careless management when the plant is grown and removed to the sheds.

Thorough culture is absolutely necessary to raise leaves of the finest quality. It would seem, however, that the soil and climate have much to do in producing the fine scented leaf, which possesses a peculiar aroma, while very fine, very elastic and of a good color, for the best cigars, grows only in certain localities.

Although the United States have annually a large surplus of crude and manufactured tobacco over from domestic consumption we are assailed by rivals from remote countries in the trade.

Some of our dealers and growers of tobacco treat the importation of Sumatra tobacco lightly, and assert that we have nothing to fear from the importation of foreign tobacco, if we will only grow Havana and give it the care and attention its importance demands. This may be so, but it is very doubtful. Taking into consideration that the Sumatra

tobacco is raised by coolie labor, and on a soil and climate highly favorable to its cultivation.

Sumatra is a large island 800 miles long, and 170 broad, with an area of 136,000 square miles, nearly three times the size of Pennsylvania.

Tobacco is the great product in Sumatra, and the profits enormous, in spite of the duty.

The Delhi Company, which is the chief tobacco concern, paid a dividend of 98 per cent. last year. The Delhi Company has a plantation which extends straight in one direction 36 miles, and there are some others even larger than that. In a majority of the plantations the coolies are poorly housed, poorly clad, and poorly paid. Sumatra is in part occupied by independent native powers, and part by the Dutch. It is the enterprise of the Hollanders we have to fear, only two hundred years ago it was the greatest commercial nation in the world.

Mexico and its agriculture is not in a very flourishing condition, notwithstanding that there is every variety of soil and climate in favor of it. Tobacco is extensively cultivated, but mostly for home consumption.

Cuba is celebrated for its tobacco. It is said that the tobacco used in Cuba by the lower class is chiefly imported from the United States, Great Britain and other countries, which import large quantities of United State's tobacco, after reaping a rich harvest of revenue from it, let it out to the manufacturers and consumers, according to quality, much of it is of the poorest kind. Much has of late been said in favor of Havana tobacco. The trouble is, it is light in weight and the seed is apt to degenerate and turn in our soil and climate to seed leaf.

In some of the governments of the old world they furnish the seed every year to the cultivators, having secured seeds from other countries where tobacco is raised, thus having fresh seed to hand every season. We rather think seed that was supposed to have degenerated into seed leaf was seed leaf all the time and not Havana seed.

Tobacco is a subject of taxation. There is no other object of general consumption more fitted for direct and indirect taxation than tobacco; nor any which brings in so large a revenue with so little perceptible inconvenience to the consumer.

The social aspect of the use and abuse of tobacco, have not been discussed in this essay; nor the policy of governments heavily taxing and deriving therefrom their chief items of revenue from tobacco and spirits. But I do think no other objects of general taxation could well be selected to take their place, and less felt by the country.

SELECTIONS.

THE IMPROVED CREAMERY PROCESS.

For some years there have been discussing and a series of experiments in the dairy districts of Eastern Pennsylvania regarding the establishment of the creamery system, and its relative advantages with the old system of individual butter making. In Bucks, Delaware, Montgomery and Chester counties, nearer the Philadelphia market than Lanca-

ter and more distinctly dairy regions than this, the creamery system has been gradually adopted, though the original co-operative plan of management has generally been abandoned and that of private and individual ownership substituted for it. Lancaster county has had few, if any, milk and butter dairies, and no cheese factories, its distance from Philadelphia interfering with milk shipments and its marketable butter—generally the surplus of that made, first for family use, in connection with the regular routine operations of farming—has been sold in the Lancaster market or gathered up by traders. Consequently it has taken no high rank for quality.

With the development of more scientific agriculture the creamery system has come into vogue, and there are now two in operation in this county, one near Manheim and the other near Bird-in-Hand, the first of which is run on the co-operative plan, and the other as an individual enterprise. Arrangements are also in progress for the establishment of a co-operative creamery near Quarryville. As the new system involves a complete change in one branch of farm and household operations and may eventually affect the price and quality of our market supply, a description of its workings will be of interest to all classes of our readers.

Enos H. Weaver and Franklin Bowman, who compose the firm of Weaver & Bowman, proprietors of the Bird-in-Hand creameries, are farmers who became tired of the labor of butter making and marketing on a small scale. In November, 1882, they bought eight acres of land along Mill creek, about a mile southwest of Bird-in-Hand, walled up a fine spring on the grounds, erected a commodious two-story building, stocked it with the necessary machinery and began to receive milk, the first day's patronage amounting to 760 lbs. of milk. At first the conservative farmers of the community, disinclined to abandon the good old ways—"old ways are always good"—withheld their favor from the enterprise, but one by one they adopted this market for their milk, quit butter-making, except for their own table use, and now the daily receipts and consumption of milk at the creamery amount to over 7,000 lbs., except on Sunday.

The milk is brought in every morning about seven o'clock, when the milkings of the morning and evening before are received. It is taken in at the receiver and weighed, for all milk is bought by weight, and 22 pounds to the quart is the standard. While milk differs somewhat in weight there is little variation from the standard in that section; and although it varies somewhat in butter-making quality all is received at the same price. From the receiver it is poured into the cooling vats, of which there are four in number with a total capacity of 10,000 pounds—or 250 gallons each. It is here cooled to a temperature of 38 degrees and when the cream has gathered the milk is run off from below into the vats where it is curdled for cheese making. The cream is then run off by itself into the cream vats where it is left for one day.

The Butter Making.

Next day the cream is churned in the sugar acid and at a low temperature. The churning is done by steam power and the butter is

worked in the granulated state. The butter-milk is washed out of it, and it is put through the first working by hand on a table with rollers. It is then salted down for one day; reworked next morning; weighed, stamped and put up in pound lumps or tirkins for the further distant markets. The creamery pounds are nearly all stamped with a sheaf of wheat and some private mark, like the "B. W." monogram, of the Bird-in-Hand dairy.

The milk which has been run into another set of vats is warmed by passing steam under it and is kept constantly stirred with a rake, to keep the curd from settling to the bottom. According to the state of the milk and atmospheric condition the cheese process varies from three to ten hours in its requirements. When taken from the vats it is thrown into a strainer whence the solid parts are gathered, put into the cheese presses, made into cheeses of about 50 pounds each, wrapped, stamped with the date of making and stored in the cheese loft to dry and in about six weeks are ready for the market.

From 100 pounds of milk there are realized about 3 pounds of butter and 7 pounds of cheese. The waste is run off to a tank some distance from the creamery, whence it is pumped out as regularly as the farmers bring in their milk, every patron being entitled to take home with him, for swill, 75 pounds of the refuse for every 100 pounds of milk bought. This avoids all waste and the necessity of stock feeding on the premises. The cheese, which is of a better quality than skim milk, is sold at from 9 to 10 cents; the butter varies considerably in market price. It is the calculation of creamery proprietors that the butter should pay for the milk, leaving them the cheese as the profit on their operations. The price of milk is fixed monthly and changes with the butter market. It is now 31.40 per 100 pounds, and the arrangement gives such satisfaction to the farmers, that of all who have abandoned butter making and taken to creamery patronage only one changed back, while the number of their patrons has increased steadily and is now between 65 and 70, some of them bringing in their milk daily for a distance of five miles and more.

Considerable opposition is manifested, among the Amish farmers especially, to bringing in their milk on the Sabbath and the receipts on that day are only about half the usual quantity; those who thus retain one day's milking usually make their own family butter from it, but the abandonment of the severe and profligate work of butter making has proved such a relief and a delight, especially to the farmers' wives that many of the patrons obtain their own supply of butter from the creamery. Besides the local market, Bowman & Weaver supply their agent, Chas. W. Eckert, of this city, with about 100 pounds daily, and the balance of their product is shipped to the large cities and seashore resorts.

That the creamery system finds favor with farmers is shown by the fact that in Bucks, Montgomery and Chester counties there have been established in the last three years, and are now in operation, about seventy-five, in a few of which the co-operative plan of management now prevails, mostly being private enterprises. In those counties, they are informed,

that there is scarcely any variation in the supply of milk on Sunday.

The Bird-in-Hand creamery is in charge of A. F. Kinney, formerly of the New York dairy regions and later of the Quaker-town creamery. He is assisted by Allan H. Hill, Mr. Bowman, of the firm of proprietors, is building a house on the grounds, to reside there and give it his constant attention. Enlargement of capacity and new machinery are contemplated, and the establishment of other creameries is projected by the same proprietors.—*New Era*.

THE NEXT STATE FAIR.

The plans and specifications for the five large buildings to be erected in this city by the State Agricultural Society, for the State Fair to be held here either next spring or in the fall, have been prepared, and bids for the erection will soon be invited. The Fair grounds will be upon the land of William Weightman, running from Broad street to Lamb Tavern road, south of the Connecticut Railroad, thirty acres of which will be inclosed by a substantial fence nine feet high. The society will take possession on April 1, when the erection of the buildings will be begun. The main building will be 300 feet long, 150 feet wide and 63 feet high, surmounted by two lofty towers at each end. This, as well as all the other large buildings, will be of iron and wood and of handsome architectural design. The seed, fruit and vegetable display will have a special building, 200 by 75 feet, and 59 feet high. It will have one tower, and will be furnished with every sort of convenience for a good display of the exhibits. "Floral Hall" will be 125 feet square and 30 feet high. There will be twenty-five approaches to this building, which is to be one of the most attractive structures on the grounds. The building for the display of poultry will be 150 feet by 50 feet, and 50 feet high, and on the English style of architecture.

In addition to all these structures there will be erected 425 cattle stalls and 125 box stalls for horses. No trotting exhibitions will be held, but there will be an oval exercise track constructed after the most approved pattern. This track will probably be a half mile circuit. The entire cost of these buildings has not yet been fully determined upon, and the plans may yet undergo some slight modifications before they will be finally adopted, although they will be substantially as described. Secretaries Sells and McConkey, who have the matter in charge, were in this city yesterday, and will hold a meeting soon when the plans will be finally adopted. Over \$50,000 in premiums will be offered by the society.—*Philadelphia Record*.

THE CABBAGE FLY.

Various means have been suggested for controlling the deprecations of the cabbage fly. Bonche, the original describer of the fly, says the plants must be preserved by dipping the roots, when they are transplanted from the seed-beds, into oil or lye of ashes. Powdered tobacco, or the fine dust from tobacco factories, scattered over the plants will preserve them from attack. The use of superphosphate of lime has been advised as a preventive

against the deposit of the eggs. If cabbages are not grown upon the same ground for successive years, and the ground meantime thoroughly cultivated with some other crop, the insects will be materially reduced in number.

In some experiments at the Michigan State Agricultural College a strong decoction of tobacco was freely applied to the plants, but without appreciable benefit. Professor J. A. Lintner writes upon the subject as follows:

"When the attack of larvae has reached that stage of progress that the plants unmistakably show by wilting and the leaves turning to a faint lead color, all such should be promptly taken up, and the hole left should be filled with strong brine or lye to destroy any of the larvae which might remain in the soil. This last precaution would be unnecessary if the plants be carefully lifted by means of a broad-bladed knife. The accompanying ground with the plant should be thrown in a deep hole made for the purpose, and covered with solidly-packed earth, through which the flies—if any of the buried larvae should attain this stage—could not penetrate to the surface. Watering the plants with lime water has been found to be of service in killing the larvae." Professor A. J. Cook has recently recommended the following method for the destruction of the larva: Bisulphide of carbon is used. To apply it a small hole is made in the earth near the main root of the plant by the use of a walking stick or other rod, and about one-half a teaspoonful of the liquid poured in, when the hole is quickly filled with earth, which is pressed down by the foot. In every case the insects were killed without injury to the plants. While Professor Cook, as the result of recent experiments, believes carbolic acid to be preferable to bisulphide of carbon for the protection of radishes, he is still of the opinion that the latter material is the most reliable in confending with the cabbage fly.—*American Cultivator*.

BARN-YARD ECONOMY.

A dark stream, often of golden color, always of golden value, flows to waste from many an American barn-yard. This liquid fertility often enters the side ditch of the farm lane, sometimes on the highway, and empties into a brook, which removes it beyond the reach of plants that would greatly profit by it. Mice may gnaw a hole into the granary and daily abstract a small quantity of grain, or the skunks may reduce the profits of the poultry yard, but these leaks are small in comparison with that from the poorly constructed and ill-kept barn-yard. The most valuable part of manure is that which is very soluble, and unless it is retained by some absorbent, or kept from the drenching rains, it will be quickly out of reach. Manure is a manufactured product, and the success of all farm operations in the older states, depends upon the quantity and quality of this producer. Other things being equal, the farmer who comes out in the spring with the largest amount of the best quality of manure, will be the one who finds farming pays the best. A barn-yard, whether on a hill-side or on a level, with all the rains free to fall upon the manure heap, should be so arranged as to lose none of the drainage. Side-hill barn-yards

are common, because the barns thus located furnish a convenient cellar. A barrier of earth on the lower side of the yard can be quickly thrown up with a team and road-scraper, which will catch and hold the drenchings of the yard above, and the coarse, newly made manure will absorb the liquid and be benefited by it. It would be better to have the manure made and kept under cover, always well protected from rains and melting snows. Only enough moisture should be present to keep it from fermenting too rapidly. An old farmer who let his manure take care of itself, once kept some of his sheep under cover and was greatly surprised at the increased value of the manure thus made. In fact, it was so "strong" that when scattered as thickly as the leached dung of the yard, it made a distinct belt of better grain in the field. The testimony was so much in favor of the stall-made manure, that this farmer is now keeping all his live stock under cover, and the farm is yielding larger crops and growing richer year by year. If it pays to stop any leak in the granary, it is all the more important to look well to the manure that furnishes the food, that feeds the plants, that grows the grain, that fills the grain bin. At this season the living mills are all grinding the hay and grain, and yielding the by-products of the manure heap. Much may be saved in spring work by letting this heap be as small as out-door yard feeding and the winds and rains can make it, but such saving is like that of the economic sportsman who went out with the idea of using as little powder and lead as possible. In farming, grow the largest possible crops, even though it takes a week or more of steady hard work to get rich, heavy well-prepared manure upon the fields. More than this, enrich the land by throwing every stream of fertility back upon the acres which have yielded it. Watch the manure heap as you would a mine of gold.

MANUAL ARTS IN FARMING.

So far as farming is of the nature of a trade, its successful pursuit requires skill in certain fundamental arts. It is true that the extensive use of machinery has rendered some arts, formerly important, of comparatively little consequence, as, for example, the art of reaping grain with the sickle, the kindred art of using the grass scythe and grain cradle. The combined reaper and mower, driven by horse-power, has superseded both. Apparently the time is near at hand when the self-binding harvester will entirely dispense with the art of binding grain by hand. But this steady change from hard labor to machinery merely changes the kind of skill needed. Indeed, the skill now required to run machinery successfully is of a higher kind and more difficult to acquire than that of the manual arts superseded. To use the sickle or scythe requires little more than patient repetition, and blind following of example. To manage a self-raking reaper or a self-binding harvester needs not less patience and care, but also higher mental qualities, a certain steady thoughtful observation, good judgment, and a development of what may be called the mechanical sense, a something which enables a person to keep in his memory all the parts of

a machine and their adjustments, and allow none to get or remain out of order. There is greater need here for that cultivated intelligence which a good education alone gives. The modern farmer's son who has had a few months' study of mechanics and mechanical movements, is much better prepared for his work than one without this limited amount of training. The essential principles of mechanics which underlie the knowledge of the proper use and adjustment of machinery, may be learned by any ordinary boy much easier than circulating decimals or the arbitration of exchange; and when they are learned they will be a thousand times more useful to him. But aside from the more complicated kinds of farm machinery there are a good many simple arts useful to know and not specially difficult to learn, yet often poorly mastered. Among these may be mentioned hitching up and driving a team in the best way, adjusting and holding a plow, building hay and grain stacks, milking a cow, dropping seed with a horse planter, cultivating corn, grinding a mower knife, marking out a straight furrow, shearing a sheep, husking corn, and many other things. The difference between great skill in these arts may be well illustrated by the case of two men, both strong and willing, whom the writer once employed to husk corn. One would husk and crib sixty bushels (of seventy pounds each) every day; the other seldom did half as much. The first in a trial effort, in ten hours of one day, husked one hundred and twenty bushels; the other could not husk fifty to save his life.

Might not greater interest in rural life be imparted to our boys by well-directed efforts to cultivate the highest development of skill in these useful arts? Suppose a county fair to select a half-dozen of them and offer a series of prizes to those young men or boys who should excel, in all or some of them. Is it not possible that such a course would be more useful to the community than the fast trotting which now is usually the only form of activity in which the management of any fair takes much interest.

Let intelligent friends of rural improvement try some plan to furnish a substitute for the demoralization so closely connected with horse racing at the fairs. The kind of competition suggested would provide an interesting series of entertainments at these gatherings, and also stimulate effort in the way of learning useful arts.—*American Agriculturist.*

HAVANA SEED.

A prominent dealer in tobacco writes to the *Economist* as follows:

"The question of paramount importance to the tobacco growers of this State, but more especially of Lancaster county, to whom the growing of the weed in the past has been a source of so much profit, is what shall we grow as a substitute for the broad leaf once received with so much favor, but now, as is evident to all who are interested in the business superseded by other varieties, and other growths? The broad leaf once so popular is almost a drug in the market. Ohio and Wisconsin can hardly be sold at any price. New York is not much better. Pennsylvania and Connecticut have proven very unsatisfactory to growers and dealers for a number of years.

Indeed, it is a question with many whether the crop has not been gradually deteriorating in quality and texture. Hence it is now being displaced in nearly all the seed leaf districts by Wilson and Allens Hybrid Havana leaf, and last but not least, by Sumatra. And it is now an assured fact that Wisconsin, Connecticut and New York, will this year grow only Havana, excluding other sorts entirely, and one of the largest dealers in New York, wrote me: "Your State will in another year be driven into the cultivation of Havana. But why not make an effort to have all your people go into growing it this year? If you do not succeed in doing so, the other States will take your place, and Pennsylvania will lose her rank and prestige in the race." This is the simple truth. With Havana we can not only drive Sumatra out of our own markets, but, as has been proven by actual experiment, it will displace it in foreign markets.

Now as to seed. Any number of growers by writing to the member of Congress from their district can secure pure Havana seed from the office at Washington, from which plants should be raised, simply to acclimatize and procure. This may have to be done two or three years until you get a leaf of texture and size desired. Then raise sufficient seed to last ten years, being very careful to keep these plants separate and not allow it to mix with any other variety. In some instances the second year has produced a very desirable leaf.

But the question until we can raise the seed from imported Havana, is "what shall we plant?" Wilson's Hybrid has done very well in some sections and in others has not done so well, partaking somewhat of the character of seed leaf. On the whole, we think that either this variety, the Wisconsin or Connecticut Havana seed will prove very satisfactory. Packers are doing their best to secure a sufficient quantity of seed to supply growers, which in most cases is sold at cost, well knowing that with a full crop of Havana leaf we can defy all competition.

If reference to plants, if the seed is sown as usual, the plants will be ready to set out sooner than broad leaf, and therefore can be planted earlier in the season. It matures in less time, and hence escapes the ravages of the green worm, and to some extent the hail storms, as it is generally housed before the season in which they are prevalent. A friend of mine raised 215 pounds of Havana from one thousand stalks. Another raised sixteen hundred pounds on one acre. In planting it should be not more than fifteen inches apart on the row, as that insures fine leaf, and three feet between the rows. This will give between eleven and twelve thousand plants to an acre; yielding at the rate above, from twenty to twenty-five hundred pounds. My friend, before spoken of, topped sixteen to eighteen leaves to stalk; he allowed it to grow up pretty well, then took two or three small leaves off with the top, about fourteen days before cutting it off. I think the number of leaves on a stalk should be governed somewhat by the season and strength of the land on which it is planted. The effort should be made to secure a fine and medium-sized leaf.

PROTECTION AGAINST FLOODS.

There is little advantage to be derived from discussing the question whether the destructive overflows in the Ohio River are caused by cutting down the forests on the headwaters of that river or not. The defoliation of the country is certainly a calamity, as the naked and parched condition of the treeless regions in Asia Minor and Southern Europe sufficiently demonstrates. But even if the sudden and disastrous inundations in the Ohio Valley are due to this cause it is too late to remedy the evil. The destroyed forests cannot be replaced in a hundred years, even if under existing conditions it can ever be done. We may as well recognize these inundations, not only in the Ohio, but in the Mississippi also, as annual probabilities which cannot be prevented. All that we do is to prepare for them, and the question how to prepare for them is the one of practical concern.

The river Nile overflows every year, and has done so for ages; and not only are no measure ever taken to prevent the inundations, but they are joyously welcomed on account of the enriching deposit they leave on the ground. They never do any damage, because there are no farm houses scattered promiscuously over the country here, and the few villages to be found are built upon elevated spots above the reach of the floods. The richest lands in the West are to be found along the streams where they are subject to overflow, and their fertility is perpetually maintained by the overflow sediment. In many cases these rich districts cannot be protected, and, if they could, they should not. But when the overflow comes there ought to be harbors of refuge for man and beast, and these might be provided by adopting the French and German practice of having farmers live together in hamlets instead of on their farms. These hamlets, compactly built on areas, and holding fifty or a hundred families each, could be fortified by thick embankments high and strong enough to resist the water, and in the inclosure the cattle from the surrounding farms could find safety till the flood subsides. This arrangement, or some one similar to it, if adopted on the Lower Mississippi, would possess other advantages than a mere protection in inundations; it would group the scattered people into compact and strong communities, and give them social and industrial privileges they do not now possess. It would be much cheaper than to build a levee round every plantation house, and the plantations could be almost as effectively worked and looked after from the central hamlets as they are now.

AVOIDING THE HESSIAN FLY.

In a paper read before a scientific association at Minneapolis, Minn., last fall, it is stated that, contrary to general belief, the earliest sowings of winter wheat are not liable to so great injury by the Hessian fly as later sown crops. A large number of observations were made in Perry county, Pa., and the farmers there are said "to maintain that the earliest sown wheat—that put in during the first week of September—often yields a good crop, while that which is sown between the 10th and 22d is badly infested, and the

latest—that sown in the last week of the month—again escapes." According to the report of the paper, in the *American Naturalist* for February, the author thinks that the early sown wheat does not escape the fly, but it grows strong, and tillers much more than the late wheat, and the number of insects is not sufficient to weaken so many stalks so that they will fall. That later sown has less and the number of larvae to stalks is necessarily so increased that the straw is sure to break down, or even die outright, during the winter, before the straw has been formed. The author of the paper states that the spring brood does the mischief seen before harvest, hence many farmers never observe the attacks of the fall brood. He says that the death of wheat roots during winter from the attacks of the fall brood causes a great reduction in the numbers of these insects, which are in the "hatched" or pupal form, and are frozen in their winter quarters. The absence of vitality in the wheat seems in some way to render the insects more liable to danger from severe cold, although there does not seem to be any more appreciable warmth in a living plant than in a dead one. It appears to the writer of the paper that the insects, by killing wheat roots, become in some measure the means of their own destruction, and that this is an "efficient cause checking to a great extent the excessive multiplication of this pest."

HOME COMFORTS FOR FARMERS.

The comfort of the farmer's family should not be overlooked. Very old farm-houses, and those that are cheaply built for temporary use until a better can be afforded, are often most uncomfortable in severe weather. Windows and doors admit the external air more freely than is required for ventilation. Weather-strips made of India rubber are very effective, but they are not to be had everywhere, and require more of an outlay than is always convenient. A little ingenuity will provide substitutes. For windows, place small wedges between the upper and lower sashes, to prevent rattling, then paste on strips of brown paper to close all the cracks, using stiff flour paste, or that made from rye meal with a little alum added. It is well to leave one upper sash to be let down, as may be required for ventilation. Doors may be made tight by tacking tailor's listing or folded strips of woolen cloth along the sides and tops. The opening at the bottom of doors is usually the largest. For this, take pieces of small scantling, of the proper length, and covers with old carpet or other convenient fabric, stuffing the side which goes against the door, with wool, cotton, or even with hay, to make a sort of cushion. While it is well enough to have the kitchen door open directly into the room in summer, it is very uncomfortable for the inmates in winter. If possible, a storm door which can be closed before the kitchen door is opened, should be provided. This may be made in such a manner as to be taken away in warm weather and stored for future use. Sleeping rooms in farm houses are usually cold. Those who suffer from cold feet should not be deterred from making themselves comfortable through fear of being thought "old womanish." If one cannot sleep on account of cold feet, he

should warm them. Bottles of hot water will answer, but are not so good as blocks of soap-stone. Blocks of hard wood, that have no turpentine, if placed in the stove oven early in the evening, will be found excellent foot warmers. In driving in the country in very cold weather, a foot warmer of some kind will add greatly to the comfort of those making the journey.—*American Agriculturist*.

TSETSE, OR POISON-FLY.

This great barrier to African traveling was first met by the Boers and other travelers on the Limpopo; and though most people on their first encounters felt doubts regarding its repute of the sting being fatal to horses and cattle, too painful experience of its ravages has left no doubt on the subject. We find again the insect rising here, after we had completed more than a thousand miles of our explorations towards the unknown interior of Central Africa, crossing our path and stopping our progress in every direction. The tsetse is, in extreme length, half an inch, or very little more, and has very much the appearance of a young bee just escaped from its cell, or a bee half-drowned in honey, the wings being always closed when stationary. The body is not quite so long as that of a bee, and much more slender.

The bite of the tsetse is something like that of the mosquito, but the pain not so lasting. It assails different animals in their most defenceless parts: a man behind the back between the shoulders, and an ox on the back or under the belly; a horse in the same places, and inside the nostrils; and a dog on the forehead, &c. With the proboscis they penetrate a pilot cloth coat and whole suit of underclothes. The bite of this insect is fatal to cattle, horses, sheep and dogs; but there is a peculiar breed of the latter known as *Makoba* dogs, which are exempt from the effects of its poison, the breed having from time immemorial been reared in the "fly" country, and escaped a *coe milk diet*, as the natives say. It has no ill-effects whatever on game or upon men, except that being bitten by numbers is likely to induce headache, as with the irritation of mosquitoes. The symptoms, as I have observed them, are, first, in the ox, a swelling under the throat, which if lanced emits a yellowish fluid. The hair stands on end, or is reversed. The animals become debilitated; and, though the herbage be ever so luxuriant, refuse to eat their fill, and become thin. The eyes water, and at length, when the end is approaching, a continual rattling in the throat may be heard at a few paces' distance. It sometimes happens that a fly-bitten ox will live, but very rarely, and only when it has no work to perform. Work and rain are great precipitators of their end. In horses the symptoms are swelling about the eyes and nostrils, the hair is reversed, and, though they have the best of food, they become thin, sleepy, and pining gradually, at length die.

Both cattle and horses live from fourteen days to six months after having been bitten by tsetse, but they generally die after the first rain has fallen. A dog dies in ten or twelve days, or two or three weeks at latest. It is perceptible in the eyes, which are swollen and protruding. After death the heart of an

ox is generally increased in a yellowish glutinous substance, which might be mistaken for fat. The flesh is full of little bladders of fluid, and the blood also is half fluid, which becomes congealed on cooling. The vitals are of a livid color.

The tsetse fly is generally found within a few miles of water, in rich sandy ridges near marshy spots, and generally in mopani or mimosa forests. I have known them to shift their positions, or encroach on new ground, or leave parts where fire-arms have driven the game out of a district. They are mostly only found within a certain range from water. To the buffalo in particular the insect is more attached, and often moves about with them in the rainy season.—*Chapman's S. Africa.*

BUILDING MATERIAL.

The question, which material is best for building poultry houses? depends so much on circumstances that it is impossible to give any definite reply, for the man of means may consider that brick, stone and hard wood is best, while the man in close circumstances will naturally consider common pine lumber preferable, considering the smallness of his purse.

As in most cases poultry houses are temporary structures, comparatively speaking, it is best ordinarily not to build of other than wood, and this does not in the least prevent the expenditure of an almost endless amount of cash and labor on ornamentation, if thought desirable or advisable, or the pocket-book will admit of it. As a rule, brick or stone poultry houses, besides being more expensive than wooden structures, are also very liable to be damp, and the dampness engenders quite a formidable array of ailments and disorders, which go far toward making the profits of poultry breeding at least very uncertain and problematical. They can be built so as to avoid this dampness, in a great measure, but as the dampness is due more to the want of care and attention afterward, in regard to ventilation, the case is not materially affected.

All wooden poultry structures, most of which, while they may not be very elaborate when finished, can be built by almost any one who has fair mechanical abilities, are vastly improved in their lasting qualities by keeping the surface covered from the air and sun by the application of paint, or some similar preservative, to the boards. Some use tar; but this, while it preserves from decay, makes the house too somber looking. Cheap paint, made for outside work, is the best, while lime, in the form of whitewash, is not unfrequently used, as it gives everything a bright and cheerful appearance, and some claim that by soaking into the wood it greatly improves the durability of the boards. The insect enemies of poultry, too, are not friendly to lime in any form.

Common, unplanned boards make a very good, cheap house, with hemlock studding, bracing, etc., but if it is desired to have a smoother finish, planed boards (planed on one or both sides) can be used. If you have plenty of time and but little spare cash plane them yourself, and have plenty of shavings wherever to kindle fires; but when the cash is

plenty it pays better to buy the boards already planned by machinery.—*Co-operative Poultry Post.*

FARMING DOES PAY.

Next to money, there is nothing like saving time. Since I first followed the plow when a boy (for fish worms) I have always made it my object to make the most out of every minute, and I can assure you that my style of farming has paid, from the fact that at my present time of life there are not more than one or two mortgages on my farm, and they could easily be removed by the money. In agricultural economy there is nothing like doing two things at once, and my most distant relatives and friends say that I am a humane, easy farmer, and I lay claim to being industrious. Now you know every farmer loses a great deal of time just in grinding his axes and knives. I have changed all this. By a slight contrivance on the other side of the grinding-stone, I have attached a self-feeding straw-cutter; so when the boy turns the grind-stone, the straw-cutter goes at the same rate, and thus two objects are accomplished at the same time—if the boy does growl, and growling doesn't make it any easier, goodness knows. I can't see how it could.

In seeding time one of my boys goes into the field and scatters the grain broadcast with ease at the same time he pulls behind him a light harrow of my own construction, and the seed is harrowed in. Thus you readily see the expense of a drill and several horses is saved. I am trying to study out a plan for attaching a clodroller behind the harrow to save the boy the trouble of going over the field the second time, at which he might growl. Hoeing corn and potatoes is slow work; so I furnish my boys with handles that have two hoes on them, and of course they do double the work that one does, as you will allow and in harvest my cradles have a back blade as well as a front one, so they cut backward as well as forward; and as the old wood-saw only cuts as it goes down through a stick, I have had one made for my boys that also cuts coming back, and thus it saves half the time. When "agents" of any kind call on me, or even my neighbors, I invite them to the barn and get them to help me to husk corn, while I listen to their talk; and you see I get a good deal of work done while I am getting a good deal of valuable information, and nobody loses any time—but them.—*American Agriculturist.*

HOW TO COOK AN OLD HEN.

I may, however, mention an experiment that I have made lately. I killed a superannuated hen—more than six years old, but otherwise in a very good condition. Cooked in an ordinary way she would have been uneatably tough. Instead of being thus cooked, she was gently stewed about four hours. I cannot guarantee to the maintenance of the theoretical temperature, having suspicion of some simmering. After this she was left in the water until it cooled, and on the following day was roasted in the usual manner, *i. e.*, in a roasting-oven. The result was excellent; as tender as a full-grown chicken roasted in

the ordinary way, and of quite equal flavor, in spite of the very good broth obtained by the preliminary stewing. This surprised me. I anticipated the softening of the tendons and ligaments, but supposed that the extraction of the juices would have spoiled the flavor. It must have diluted it, and that so much remained was probably due to the fact that an old fowl is more fully flavored than a young chicken. The usual farmhouse method of cooking old hens is to stew them simply; the rule in the midlands being one hour in the pot for every year of age. The feature of the above experiment was the supplementary roasting. As the laying season is now coming to an end, old hens will soon be a drug in the market, and those among my readers who have not a hen-roost of their own will oblige their poultryers by ordering a hen that is warranted to be four years old or upward. If he deals fairly he will supply a specimen upon which they may repeat my experiment, very cheaply. It offers the double economy of utilizing a nearly waste product and obtaining chicken-broth and roast fowl simultaneously.—*Popular Science Monthly.*

THE CODLING WORM.

Perhaps no insect has given the apple orchardist so much trouble as the codling moth, and any tactics that will give victories over this long triumphant enemy will be hailed with shouts along the line. Hear what Mr. A. G. Tuttle, for many years President of the Wisconsin State Horticultural Society, and a leading nurseryman of that State, says: Mr. Tuttle is testing over one hundred varieties of Russian apples, and what he says is, that he has discovered a remedy—or rather a trap—for the moth, that has proved to be a complete success. This is the trap: Take shallow pans or saucers, and place some very strong apple vinegar in them, and hang about the branches of the trees. The smell of the vinegar attracts the moths, and they are caught and drowned in the same. Mr. Tuttle says he has caught over forty codling moths in one of these pans in a single night. He counts it a great success. He says he notified Charles Downing, a leading authority on fruit in this country, of this matter, and of his success; and that Mr. Downing advised him to disseminate the information through the medium of the press, as it would be of immense benefit to the fruit growers of the country. Certainly this is important, if true.

THE FLY'S NOSE.

Prof. George Macloskie, of Princeton College, recently read a paper before the New York Academy of Science on "The Proboscis of the House-fly." The wall behind the desk at which the professor stood was decorated for the occasion with diagrams showing highly magnified sections of the body of the common house-fly or *Musca Domestica*. There were also some pictures of exaggerated cockroaches and a representation of an enormous lobster, more than three feet long—so large in fact that the teeth in his "spoon-shaped jaws," could be distinctly seen. As for the picture of that instrument of torture, the proboscis of the house fly, it resembled both in shape and size, a rifle with the barrel broken off where

it meets the stock, and a large warty potato stuck on. The potato would represent what some naturalists would call the "tip," and what others would call the "knob" of the proboscis. Prof. Macloskie declared that it was a mistake to say that flies bite, the testimony of all mankind to the contrary notwithstanding. They didn't bite, they only filed. It was for a long time said by naturalists that this knob at the end of a fly's proboscis was made up of muscular tissue, by which the owner was enabled to rub his teeth, so to speak, into the flesh of suffering humanity. Later investigation has demonstrated the fact that this knob was made up principally of small roots, the sharp ends of which projected a little beyond the end, making a surface similar to that of a very sharp and effective file.

The lecturer went on to describe just how the flies go to work to file a person's face. Having discovered a minute speck of something palatable, the fly first dropped a little saliva upon it to moisten or dissolve the dainty morsel. This done he went to work with his little file, executing a movement like that of a snout of a pig when rooting up the earth. Having gathered up enough for a "swallow," he drew up his proboscis, emptied the food into his mouth and chewed it. To prove that flies had teeth, although they were so located as not to enable them to bite any external object, the professor passed around a specimen of a fly's jaws, adjusted under the objective glass of a microscope, and showing off the fly's back teeth to great advantage. The mosquito's apparatus was very different. That interesting New Jersey bird was provided with a number of lancets set in among a system of sucking tubes. This enable it to bore for blood and draw it up at the same time.

TO CAUSE THE HORSE TO FOLLOW YOU.

To cause him to follow you while his head is confined with a bridle or halter, put on the "Yankee Bridle," take hold about two feet from the head, give him a few short, quick side pulls to the right and left, then taking quickly hold of the rope further toward the end as you step back, say decidedly: "Come here, sir!" If he comes forward caress him; if he does not come give him a pull with a sideways tendency, and repeat the attempt to have him come forward until he does come; then start off either to the right or left with the rope slackened; if he does not follow you give him more pulls sideways and try him again. With an ordinary horse you can teach the lesson in ten minutes, so as to be followed by him when you are near the head. Step partially behind him laying the rope along his back, and say: "Come here, sir!" He will not be likely to do it, because he has only been taught to go forward at the words. To teach him to follow you in this direction you will then chirrup to start him, repeating the words. If he comes, caress him; if he does not come or moves in the wrong direction, pull upon the "bridle," caressing him as he obeys. The same rule will apply to any direction in which you wish him to follow you. It is quite necessary to teach the horse this habit, as it is the foundation of many others, and is one of the most valuable which the horse can possess.

To teach him, for your amusement, to follow you when entirely loose, put on the near fore-foot the long foot-strap and place on him a girth; pass the strap under the girth, holding the end in your hand, step away from him. Then step toward him, and if he attempts to step away from you pull on the strap and say "whoa." If he stops step up and caress him. Repeat until he allows you to step up to him without moving away. Now take a short, blunt whip in your right hand and the strap in your left, standing by his side, pass your right arm over the withers and gently touch him on the off side of the head. If he starts to move off pull on the strap and say "whoa." When he turns his head caress him, and gradually, with the whip, forcing him to turn his head around toward you. When he will do this every time you put the whip over you may remove the foot-strap and practice him in the lesson until he will come to you every time you lay the whip across his neck; then put on the foot-strap again, put the whip in the same position, and hit in the same place quite hard, at the same time saying: "Come here, sir!" After a little he will be very prompt; then place him in a corner and step off at a distance of eight or ten feet and say: "Come here, sir!" If he comes, caress him; if he does not come, hit him gently on the breast with a long whip; he will, perhaps, struggle to get away, and if he attempts to get out of the corner pull upon the strap. When he faces you step up to him and caress him, placing him back in the corner, and repeat; if he finally shows a disposition to follow step back coaxingly, and when he stops caress him; at each further repetition use the words: "Come here, sir," at each motion of the whip; in this way he will soon learn to follow out at the words, if you have a whip in your hand. Don't take him out of doors to practice until he is quite perfect, and then beginning in small yards and alone.

TANNING AND TAWING.

Chas. W. Lawrence asks in the *FARMER* how to tan dog, coon, cat and squirrel skins with hair on and off. Tanning used to be my trade, and I am happy to be able to give the desired information. First, soak the skins in water. Smooth off a half round log, or a slab, and put legs in one end, for a "beam." Then for a "fleshing knife" use one-half of an old scythe; place the skin on the beam and with the fleshing knife scrape off all the filth, fat and flesh adhering to it. If the skins are dry they require several days' soaking, and considerable rubbing to get them as soft as when they came off the animal.

Next, place them into a lime bath, of about the consistency of thin whitewash. Stir them once a day until the hair comes off, then place them on a beam and remove the hair and what flesh may still be attached. (Ashes will also remove the hair.) Next place them into a solution of, say one pint of hen manure to a pailful of water. This is called "bating," and removes the lime. Handle each day for a few days, and then place on the beam and scrape again.

They are now ready for tanning. If you want to tan with the hair on, omit the liming and bating. The trouble will be if you have no bark, or a mill to grind it, you are at a

great disadvantage. You can, however, in a copper kettle, boil the leaves and twigs of oak trees and with several repetitions extract enough tanning for a few small skins, by using a tub or barrel, and immerse the skins in the solution after it becomes cool. Commence with a weak solution, and gradually increase its strength. The first day or two frequently "handle" or stir the skins in the ooze. When tanned, wash and scrape the leather and apply fish oil on the grain side, and a "dubbing" made of two-thirds fish oil and one-third melted tallow, mixed, and hang up to dry. To black the leather on the grain side, use extract of log-wood, a little coppers, and if you can make an ooze of black oak or quercitron bark, you have a blacking that can't well be beat. This blacking is just the thing to use on your harness before you grease.

Tawing is a much quicker process than tanning. Proceed as above directed to get the skins "ready for tanning," with the exception, if you want to tan with the hair off, instead of hen manure, use wheat bran for bating, say about two pounds of bran to a gallon of water. When through with this, make a "white bath," composed of a boiling solution in the proportion of, say one gallon of water, one pound of alum, and one-fourth pound of salt. Pass the skins separately through this hot solution, and then immerse them together, and leave them in it for ten minutes. A paste is then made by gradually adding during careful and constant stirring firstly, one and a-fourth pounds of wheat flour to the above alum bath gently heated, and subsequently, the yolks of four eggs, and then incorporating the whole thoroughly. The skins, either with or without the hair on, are passed through this paste singly, and then transferred to it in bulk and left for a day. Then hang up and dry slowly. When dry take hold with both hands and rub across the edge of a shovel, until they become soft as velvet, and white as snow.

Sheep pelts tanned in this way make very nice rugs when colored; four of them sewed together and lined make a good robe. Coon, rabbit and squirrel skins make good furs. The skins of the heads and necks of ducks tanned this way and sewed together would make an elegant ladies' hat or collar. It is indeed "fancy work," or "an airy nothing," and stealing a march on "Fanny Field."

Equal portions of pulverized alum and salt rubbed on the flesh side of a skin, then rolled up and immersed for a few days in a solution of the same proportions of alum and salt, will also tan, or taw it, but it draws so much dampness. A ground log or a woodchuck skin, after the hair is taken off, then immersed a couple weeks in soft soap, is an exceedingly handy thing from which to cut strong strings. A calf or deer skin with the hair taken off and then oiled, rolled up and pounded with a mallet, this repeated each day for a week, then hung up to dry, and then drawn across the edge of the shovel, makes shoe or belt lacing of the strongest kind, as it will be "oil tanned," and farmers can easily keep themselves supplied with so useful a material. For bag strings it is unsurpassed. The Indians tan with brains. After the hair is removed they place the skin along with the brains in an earthen pot; the con-

tents are then heated to about 95°, which converts the brains into a kind of lather, makes the skins very clean and pliable.

If you want to make your boots and shoes pliable, wear much longer, and as near water-proof as can be made, boil them in oil and tallow. If they are not perfectly dry, however, they will be ruined, but if perfectly dry you need have no fears to try it, and if you try it once you will do it again.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The Lancaster County Agricultural and Horticultural Society met in its rooms on Monday afternoon, March 3rd, at two o'clock P. M.

The following members were present: Calvin Cooper, Bird-in-Hand; W. H. Brosius, Drumore; J. C. Liville, Salisbury; Casper Hiller, Conestoga; S. P. Eby, F. R. Dittendierfer, J. M. Johnston, city; H. M. Engle, Marietta; Joseph F. Witmer, Paradise; Johnson Miller, Warwick; J. P. Wickersham, R. B. Risk, city; C. L. Hunsceker, Manheim; John H. Landis, Manor; Dr. Bollinger, city; E. S. Hoover, Manheim.

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

Crop Reports.

Casper Hiller said the wheat crop looks very well. The nice have been doing have in the clover fields. The peaches are still all right. From one in seven to one in thirty seems to be about the amount of damage done.

Calvin Cooper endorsed what was said by the preceding speaker. Wheat seems to have done very well. It looks green and thriving. He believed the fruit crop was all right so far. He thought the open ground had much to do in saving the crop.

Joseph F. Witmer had not examined the grass. The wheat looks very well. Tobacco has all been stripped, but little has been sold.

Johnson Miller said wheat came out remarkably well. The late snow has been beneficial to the fields. Tobacco is mostly stripped. He believed we should have an essay read before the society on the growing of Havana seed.

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W. H. Brosius had nothing new to offer.

John C. Liville could find no peach buds on his forty trees that are still alive; all have been destroyed.

H. M. Engle remarked that in his neighborhood all the peaches and some of the cherries are winter killed. The thermometer at one time was eight degrees below zero—a temperature cold enough to kill the peaches. Field nice have never been worse. Osage hedges have been very much cut up. One hedge he saw has hardly more than two dozen ungrilled trees left. The rainfall for February was four inches.

J. C. Liville read the following essay on

Road Making.

The time is near at hand when the supervisor will make his annual round and dump a cart load of big stones in a mud hole here and there, pile more dirt on the tops of breaks that are already too high, and perhaps run another furrow in the bottom of side ditches that are already so deep that a loaded wagon cannot be drawn out of them if the driver is so unfortunate as to get too near the side of the road. This brings to mind the fact that no part of the "civil service" needs reforming so badly as that relating to our public roads.

The average supervisor is generally a man who

has failed to earn a living at anything else, and falls back on the townships for his bread and butter through the wages of his office. It is needless to say that he knows about as much of engineering as a Patagonian knows of the differential calculus. Under his supervision the roads always will be bad, no matter what the road law is.

In some townships in this county the roads are sold, in short sections, to the lowest bidder, to be kept in repair for three years. The system is a good one theoretically, but a disgusting failure in practice. The system is a failure because, first, nine tenths of the contractors are not honest enough to fulfill their contracts; secondly, the supervisor is too stupid to see that the road is not repaired according to contract; and, thirdly, because if he does see it he has not nerve enough to compel its fulfillment lest he be "sat down on" at the next election. It is doubtful if, under the same supervision, the old plan of employing the hands by the township is any better. Very few men are competent to "boss" a gang of hands and have them do efficient work, and such men get better positions than township supervisors.

Assuming, however, that we have an efficient supervisor, the first requisite is to have good machinery. A road machine, a stone crusher, a large strong plow and smaller tools should constitute the outfit. As most of the work on the road is done in the forepart of the season, a portable threshing engine can easily be hired to operate the stone breaker.

The law very properly fixes the maximum grade of a public road at five degrees, or about nine feet in the hundred, and it should be the aim of supervisors to reduce all grades on much traveled roads to this standard. Many hill roads have a grade of twelve or thirteen or even more feet per hundred. A road-grade ought not, in any case, to exceed eleven feet to the hundred. Where rock crops out on a hill there is only one remedy—it must be macadamized. The average "rumpike" is made up of all sizes, and especially big ones, dumped into the road and a few of the largest ones broken on top and then covered with dirt. Such a road is an insult to the common sense of the community and a constant temptation to teamsters to use language forbidden in the decalogue.

The big stones are soon on top and are a source of continual annoyance. McAdam, the inventor of the system, says the stones should be broken to the size of about one inch cubes. They certainly ought not to be over two inches in diameter. The breaker is required to reduce the stones. If the job is properly done the road will last for generations with but little repairs. No breaks are needed to turn the water off this road. It will find the sides as easily as "rolling off a log." Most hills have entirely too many breaks. When breaks are made they should be wide on top and the grade get easier near the summit, and the water space above be broad and not deep. The man who runs a break diagonally across the road should be sent immediately to an insane asylum or the penitentiary. A good road has no deep side ditches, but is rounded from side to side, and is road all over. Teamsters may drive fully out to the sides and draw their loads back to the center of the road. With the improved road scrapers now in use two men and a team of horses will do the work of twenty or thirty men with shovels and do it infinitely better. The hills on the main thoroughfares should be graded first, and by intelligent management all the roads could be made good in a few years, and the cost need not be much greater than at present. Franklin's motto, "What is worth doing is worth doing well" is as applicable to roads as to anything else.

The public roads are an index of the thrift and intelligence of the community in which they are found. The tendency of the times is to light wagons and faster driving. We must have easier grades and smoother roads.

While speaking of public roads, it may not be amiss to consider the matter in its aesthetic bearings. The abominable habit of some farmers in letting briars, carrot, dog-fennel, scrap dragon and other vile weeds grow along their roadsides calls loudly for reform. And then some men make the roadside

near their buildings the depository of all the superannuated milk-pans, buckets, stove-pipe and dilapidated wagons, to say nothing of cast off articles of female apparel and dead cats and dogs.

It is fondly hoped that the day of better roads is not far off. The worst humber in the way is the fear of higher taxes. Oh! Blaine, give that whisky tax to pay our county expenses, so that we may lay heavier local taxes, and have better roads.

Dr. J. P. Wickersham opened the ball by saying he had ridden over roads in almost every European country. It was a delight to ride over the roads in England, Switzerland, France and Holland. He never knew how bad our roads actually were until he came home from Europe. He believed in the end the government would finally be compelled to take road making under its supervision. He rode for hundreds of miles between rows of Linden and other trees planted by the roadside. He went over great grades, but never saw a break in all Europe; they are harmful to horse and carriage.

W. H. Brosius thought the road making business had attracted as much attention as any other question that concerns farmers. Our present system is not only a vicious one, but very defective.

Joseph F. Witmer said the first way to get good roads was to educate the public to the proper pitch. Comparatively few people know what a good road is; the supervisors are no exception. People really don't know how a good road should be made. People ought to advise with the supervisor and give him the benefit of their experience. The saving of horses, wagons and harness on a good road is enormous. His idea was to have roads in such condition that people would travel over them because it was a pleasure to do so.

S. P. Eby believed this county offered some obstacles from the beginning to good roads. They have not always been carried along the most favorable routes. He thought we have not yet learned the art of road making. The idea that we ought to have road taxes at the very lowest possible point is common. This is poor economy. No money is better invested than that appropriated to roads. Our supervisors do not understand making breaks.

J. C. Liville agreed with Dr. Wickersham that there is no necessity for breaks in the roads, not even in clay roads. The great sin in road making is in using stones that are too large. We pay no tax that gives us such good and quick returns as a well-made road.

Joseph I. Witmer believed the best plan would be to place the roads of an entire county under the supervision of a competent engineer, who should see that the work on them was properly done.

H. M. Engle, congratulated the writer on the essay, on having stirred up this road matter. The people will have to be educated up to the proper point. That time will come, however, when this evil will be remedied. Even our macadamized roads are not so good as those found elsewhere.

Tobacco Culture.

C. L. Hunsceker read a long and very interesting essay on tobacco, its culture, uses and other facts concerning it. It called forth some comment, which was unfavorable to tobacco. It was denounced as pernicious, even more offensive to some than whisky. Tobacco, however, had its defenders, and some very favorable things were said of the great advantages it has carried with it to laborers and those who cultivate it. It is hardly likely, however, that the culture or use of tobacco will be prevented by anything that was said.

H. M. Engle again advocated the offering of premiums to farmers' boys for the best crop of corn from a limited area of ground. He believed the society could do no better with its funds than use them in this way.

J. C. Liville favored the idea, and moved that a committee be appointed to arrange the terms and conditions of the competition. The Chair appointed Messrs. Liville, Engle and Witmer a committee to arrange the necessary details.

Dr. Wickersham advocated the holding of local agricultural institutes for farmers. Such institutes have been held in Huntingdon, at which over 300 persons were in attendance. He believed we could get the attendance of 500 farmers at a county institute. Why not try it? Get the best men in the county in the various departments of agriculture, fruit growing, dairying, and thus get up an interest such as has never yet been felt among us. That is the way to create an interest in the farmer's profession.

Joseph H. Witmer followed in an argument in the same direction, believing a very successful institute can be held.

Miscellaneous.

On motion, the chairman was authorized to appoint a committee to prepare the details for the holding of such an institute. Messrs. Cooper, Wickersham, Engle, Brosius and Ludwis were named the committee.

H. M. Engle said there was more damaged corn last year than for forty years. Seed corn will be scarce. He had on exhibition a yellow corn that did very well with him for some years. It matures well, ripens early in the season, has little cob to the amount of corn on it, and that is thin at the butt, so as to be easily broken off at husking time, and the samples show that the butt will grow over with fine grains. A great deal can be done in corn growing by careful attention.

The following question was adopted for general discussion at the next meeting:

Is there any advantage in farmers' co-operative associations?

On motion, the society adjourned.

FULTON FARMERS' CLUB.

The Farmers' Club of Fulton township met at the residence of Lidy King, on Saturday, March 8. The following members were present: Lindley King, E. Henry Haines, Grace King, Sol. Gregg, C. C. Cauffman, Joseph R. Blackburn, Wm. King and Day Wood. Visitors: Samuel Kirk and wife, Gilpits Reynolds and wife; Samuel Davenport and family, Wm. King and family, Enos Marsh and wife, Erwin Stubbs and wife, James Smedley and daughter, and Mrs. Thomas King.

The minutes of last meeting were read and approved.

Answering Questions.

Day Wood asked, "Why is morning sunlight better for plants than afternoon?" Rebecca D. King said that she has always heard it is the case, but could give no reason unless it is that the air is more moist in the morning than in the afternoon. Samuel Kirk, "It is said that plants sleep at night, and after a period of inaction the morning sun would stimulate them to greater activity."

Sol Gregg called the club's attention to the way a neighbor had trimmed his apple orchard by cutting the entire top off, and asked the members what they thought of it. E. H. Haines thought the trees are raised; if they survive, they will send out innumerable small twigs which will never bear fruit. Lindley King thought they will not form a new top. Ed. Stubbs had grafted the top of a large apple tree, and where the grafts failed to grow, there came out a perfect wilderness of small twigs. Wm. King said that if the trees are thrifty they will survive this trimming; if not they will die. Rebecca D. King spoke of a large cherry tree, from which a large limb was cut and new branches came out and bore fruit. Some one said there is a difference between cherry and apple trees in this case.

Club adjourned for dinner, and after the usual tour of inspection around the building, reassembled and on being called to order, the minutes of the meeting last held here, were read and criticisms called for. E. Henry Haines said that he did not see much change from last year except that the trees in front of the house are trimmed up, which he thinks is a good plan as there should be plenty of sunlight about the house to insure health. He also spoke of

the fat cattle. The President was surprised that Mr. Haines had noticed the trees being trimmed and had not seen the new fences on either side of the lane. C. C. Cauffman spoke of a simple, but effective trap for catching pigeons at the barn. The host was complimented on his unusual good health and appearance, with many wishes for their long continuance.

Wm. King read from the *Practical Farmer* some accounts of experiments with corn and cotton seed meal as feed. Esther Haines read from some paper, "Could women workers support more than themselves." Wm. King read "Profits of Dairy Farming;" also an article on the adulteration of honey by glucose, and the manufacturing of spurious butters, stating that the dairy interests need protection from these imitation butters.

"As corn, oats and hay usually sell in Lancaster county, is it better to sell or feed them?" the question for discussion was then taken up.

E. H. Haines thought that the only way to keep up the fertility with any degree of certainty, is to feed your grain and return it to the soil in the shape of barn-yard manure, but in certain sections, where commercial fertilizers act well, this plan of selling of the crops might do for a while. He does not think South Carolina Rock will make a permanent manure, and the only sure, certain one is from the barn-yard.

Sol. Gregg took the opposite view of the question, and argued that as a rule if feeding of hogs is more profitable than feeding cattle, farmers will feed hogs; that farmers start heading into feeding grain and do not examine into the expenses connected with the feeding of stock. He spoke of the experiment in the article read by Wm. King, where the cost of making 265 pounds of beef was \$46.57, and thought this was (even with the value of the manure) a losing business. He does not value barn-yard manure as highly as some do. Labor is expensive, and the handling of manure was heavy work, and a large part of this mass is comparatively useless as a fertilizer; and as South Carolina rock will give as good results, and the expenses of applying are small in comparison, he is in favor of selling the crops and buying fertilizers; thinks it is more profitable.

E. H. Haines said that 20 or 30 years ago cattle feeding was universal in this neighborhood, and had from some cause decreased, until comparatively few cattle were fed; thinks the present revival is from a necessity to keep the soil up to a permanent fertility; that there is a general opinion among farmers that barn-yard manure is the only safe and durable manure.

James Smedley was of the opinion that thirty years ago most of the cattle were grass fed. They eat the rough feed through the winter, and the corn was sold, which was found would not keep up the productivity of the farms, hence the new departure to grain feed.

Club then proceeded to the election of officers for the coming year, and the result was as follows: President, Joseph R. Blackburn, Pleasant Grove; Secretary, Day Wood, Goshen; Treasurer, E. H. Haines, Pleasant Grove; Librarian, C. C. Cauffman, Wakefield.

On motion Wm. King, Sol. Gregg and E. H. Haines were appointed a committee to draft resolutions on the death of our worthy and active member, Josiah Brown.

On motion, Enos Marsh and family were elected members of the club.

Club then adjourned to meet at Sol. Gregg's, April 12th, 1884.

TOBACCO GROWERS' ASSOCIATION.

The New England Tobacco Growers' Association held a meeting at Hartford, Conn., on the 7th of February, at which resolutions were passed relative to the action taken before Congress in 1883, and before Secretary Folger last January, and the success that attended their efforts. They congratulate themselves on the result, and say it shows what can be done by united and persistent effort. The asso-

ciation extends its hearty thanks to all who aided in the proper protection of the tobacco industry. The names of Senator Hawley, Platt and Dawes, and of Representatives Eaton, Smith, Hiseock, Harby, Whitney and Smith, of Pennsylvania, are mentioned as those who contributed largely to the success of the protection measures.

The resolution, however, that merits most attention is the following: "In union there is strength," we will act in accordance with that belief and invite the tobacco growers of other States to immediately form in their own States organizations similar to ours for mutual benefit and protection, the officers of which organizations shall be in full sympathy with us and each other."

This is an invitation that should be embraced by the professional tobacco growers of every seed-leaf growing State in the Union. They say truly there is strength in union. How much power is needed sometimes was seen during the past year. How soon it may be needed again no one can tell. The tobacco interest we believe to be the only one of any importance in this State that is not represented by a regularly organized association. Manufacturers of all kinds, merchants, fruit growers, florists and guilds of every class have united for their mutual benefit. The farmers are represented by more than one hundred separate organizations. Only the tobacco growers have shown an indifference to their interests. Why this is we cannot undertake to explain; we only know it is so. Even here, in Lancaster county, the largest and wealthiest single tobacco growing district in the United States, we have no tobacco association whatever. Here, where we grow from twelve to eighteen million pounds of the best domestic leaf known to manufacturers; where we have one hundred large packing warehouses, and where the value of the tobacco product has in some years exceeded three millions of dollars; even here we have been unable to keep up a tobacco grower's society. Eight or ten years ago the attempt was made. We still remember, and regretfully, how the monthly meetings of the growers of the weed grew smaller by degrees, and beautifully less, until finally the organization was abandoned for lack of interest and attendance. Whether any greater interest could be aroused here now, we do not know. It is questionable at best. But we believe it possible to form a strong State organization if the effort was made. York, Chester, Bucks, Clinton and other counties are largely engaged in tobacco culture. In ordinary years this State produces one-third of all the seed-leaf grown in the United States. Is it not a reflection upon the thousands of tobacco growers and the hundreds of large packers and dealers that they have no organization through which they can make their influence and power felt? The suggestion of the New England Association should be taken into serious consideration. If an effort was made in the various tobacco growing communities, it is undoubted that a large and influential association would result. Events have shown the tobacco industry needs friends who can exert their influence at short notice. This can never be done while they remain disunited.—*New Era*.

LINNÆAN SOCIETY.

The Linnæan Society met on Saturday afternoon, February 23, 1884, at 2 1/2, P. M. The minutes of the previous meeting were read and approved and dues collected. Several lady and gentlemen visitors were present. Vice President J. H. Dubbs was in the chair.

Donations to the Museum

consisted of several specimens of a very common insect in this locality; and yet, common as it is, it has not received a distinctive common name, nor yet its specific name fully determined by scientists. It is supposed to be *Lepisma Saccharina* of Lin, and is known elsewhere under the common name of "silver-tail," "bristle-tail," etc., and is also sometimes "mitten" taken for the common "house moth."

It belongs to the order *Thysanura*, which includes the "spring-tails," "snow-flies," and others.

These insects, among other things, are destructive to books and manuscripts, of which the specimens exhibited are ample illustrations, and when they become numerous they are capable of doing much damage. I have been informed that they manifest a fondness for the surface of photographic pictures. They are partial to dark closets, especially if they are damp. I found them very numerous the present month, on the lower shelves of a dark closet, among old bills, letters and other papers that had not been disturbed for months.

They are swift runners, and when once alarmed they are not easily captured, without mutilating them. There are several species of the genus *Lepisma*, but their specific differentiations, their histories, and their habits have not yet been thoroughly "worked-up."

A calcareous incrustation, and some granular deposits of the same, taken from the inside of a steam boiler, donated by Mr. John Best. This is simply a carbonate of lime, and it effervesces violently under sulphuric acid.

A specimen of ferruginous shale, from Tennessee, donated by Mr. E. C. Reist, many months ago, but mislaid and then forgotten, and only discovered recently. It is a common shale impregnated with iron.

Part of the matrix of a "conch-shell" (*Strombium*) containing many young shells. These are found very commonly along the beaches of the Atlantic ocean and the shores of our bays. They form ample illustrations of the prolific character of sea-shells. They are often found a yard in length or more, and bear a remote resemblance to the rattles of the rattlesnake, and have been mistaken for them; when dry, a rattling noise can be produced similar to that of a snake.

S. M. Sener donated a small collection of minerals, consisting of hematite, magnetic ore, gneissic slate and rock, green chlorite, and a piece of gill moulding from St. Mary's old stone church, torn down in 1881.

P. E. Grager donated fourteen specimens of different varieties of marbled and slate.

Donations to Library

consisted of a copy of transactions of the first annual reunion of the 123d Regiment of Pennsylvania Vol unteers, held at Lancaster, May 17, 1883. Donated by the compiler, Mr. John S. Smith, historian of the regiment. 90 pp. octavo.

THE LANCASTER FARMER for December, 1883, and January, 1884.

The "Book Buyer," a summary of American and foreign literature, 16 pp., sq. octavo.

Catalogue of Books on Heraldry, Family History, Antiquities, and Topography, 64 pp., 12 mo.

A representation of "Frost upon the Pane" in the window of a store in Oil City, December 23d and 24th, 1872. These phenomena occurred very generally over the entire Northern States of the Union during the winter of 1872 and 1873, a photograph of an unusual one being in the collection of the society (from Mr. Metzler).

A copy of the "Centennial Guide," 1876, four lithographic fac similes of Centennial medals.

Nine envelopes containing 40 historical and miscellaneous scraps, including several local original papers, old proceedings of the Linnean Society; also a copy of the *Lancaster Daily* of 1854, the first daily newspaper published in Lancaster.

Also a copy of the *Village Chronicle*, published in Marietta, Pa., and dated June, 1820. From Davis Duchman, of Strasburg.

An illustrated copy of the *Muscatine Daily Tribune*, Iowa, 1884.

Sundry book catalogues and circulars.

Bulletins 6 and 7 of Pennsylvania State Agricultural College.

Diace and Concord's "Guide to Rose Culture," and J. L. Child's "Catalogue of Rare and Curious Plants."

Catalogue of rare second-hand books.

Dr. S. S. Rathvon read some notes on the sea duck, (*Ectopis perspicillata*) caught in a garden in this city among some tame ducks.

The vice president appointed Dr. S. S. Rathvon as

chairman of the Committee on Conchology, the position having been overlooked at the last meeting. The Secretary reported progress in endeavoring to collect delinquent dues, and said that he had success in collecting between \$15 and \$20. He also stated that one stockholder had authorized the cancellation of his share. The secretary presented a bill of \$4.20 for printed notices, postage, envelopes, paper, etc., which on motion was ordered to be paid. On motion the secretary was authorized to issue a gratuitous share of stock to each active member who had paid all dues for the period of three years as called for in charter, and also to issue a duplicate share in place of one lost by A. F. Hostetter. Prof. The. Appel and Miss E. V. Baker were proposed for active membership, which under rules is laid over for one month. Bill of Dr. M. L. Davis for \$12.25 for postage whilst secretary, presented and ordered to be paid. On motion adjourned to meet on Saturday afternoon, March 20th, 1884, at 2 P. M. in Museum Rooms.

HORTICULTURE.

Growing Nuts.

To form a line or grove of future nut-bearing trees get the largest chestnuts, walnuts, hickories, etc., to be had, and either plant this fall five or six in a hill in each place where a tree is wanted—the best only to be finally retained—or spread all on the ground near the house, where mice, pigs, etc., are kept at effectual bay by the cats and dogs, and plant out as soon as sprouted in the spring, carrying the sprouted seed in a pail with water, and setting fewer in a hill. In either case they must have merely covering enough to prevent them drying while admitting air freely; charcoal braise, open leaf mold or pure coarse sand are suitable, and should but just cover the cuts. Keep the soil open and all weeds and shade strictly away, and exclude all graminivores until the stems have got out of their reach. Dry, sandy or rocky soil is generally preferable—the poorest sand is first choice for chestnuts. This is one of the most desirable of farm improvements, and on that account will prove a monument to the planter and deep his memory fresh through grateful generations.

Now, too, is a better season than the spring for making and setting cuttings of evergreens or shrubs or roots that require—as most things do—some time of slow preparation before they root. The wound must heal to shut out excess of water, and a callous must form of simple, herbarious tissues, profusions from which are the beginnings of the new roots, which, like all other wood growth, are at first mere cellular tissue, from and in which the woody fibre ducts, etc., of the complete wood are formed. By setting cuttings now in open sandy soil in a glass-covered pit or cellar, where serious freezing and drying wind and excessive wet are all safely excluded, they can fully prepare by the slow winter motion and adjustment of their stored material, to make an early profusion of roots which will have a safe hold of the soil before hot or dry weather. Most of the smaller evergreens can be propagated in this way from small cuttings, and most sorts of roses are multiplied by short cuttings of the roots planted like seeds in loose mold at this season, and with similar winter protection.—*New York Tribune*.

Solanum.

Out of the 700 species of *solanum* known to botanists, according to a paper read by Mr. J. G. Baker before the Linnean Society of London, there are only about six which produce tubers, and only one of these, the common potato, *solanum tuberosum*, has yet been cultivated. The native home of the potato is in the dry and elevated parts of Chili. In other portions of the same country is found another species, *S. Mayta*, which should be much better adapted to general cultivation, as it grows in moist places. As long ago as 1825 the cultivation of this species in England was attempted, with most promising results, but was

soon abandoned because the plant was believed to be identical with the common potato. Another species, *S. Comersoni*, from the eastern part of South America, is now being cultivated experimentally in France, and is likewise suitable for damp soil; while a third wild species, *S. Jansoni*, is being tried in the United States. This last species is the one which Mr. J. G. Lemon discovered in southeastern Arizona in 1881.

Pruning—How and What.

The manner in which we often see trees hacked and cut, with long stubs at the base of the branches cut off, and strips of bark peeled down from the place where they were removed indicates a lack of intelligence or care, or both on the part of the operator. The man who has care of an orchard from the start can give no valid excuse for having badly-shaped trees, so far as pruning can control them. A fruiterer should be able, as he stands by his young tree, to look into his future and mentally see that tree when grown to large size, and to judge of the effect that every branch he leaves on it will have on the shape and balance of the head. Every limb not needed to complete the symmetry and balance of the head should be rubbed off with the hand as soon as it appears. A forked tree should not be suffered to live. It is an insufferable nuisance. If one of the branches cannot be cut off and the other used for the stem of the tree, then let both be removed and a vigorous sprout be selected from those that start and trained for a trunk, forming a head at the proper height.

But trees are often required to be pruned after having reached a considerable size. In that case two or three general principles should be kept in view. One is that a perfect balance should always be maintained in number, weight and extent of the branches over the base of the trunk of the tree. Another is that the center of the head should always be kept open and free to access of both air and sunlight. Fruit that grows entirely in the shade is neither so highly colored nor so finely flavored as that which has had the benefit of sunlight. In pruning a large tree the operator should begin at the centre and prune outward. All branches not needed to make a well balanced head, with branches evenly distributed, must go. The branches left should be so far apart that even when grown large they may not interfere by rubbing or chafing. The style of growth of a tree is to be taken into account in pruning, so that the shape of the tree may be properly regulated and controlled. If the tree is a spreading grower the lower and outside branches should be cut in preference to the upper or inside branches; but if it be a very upright grower then the reverse course is to be followed. Wherever gaps or vacancies occur the surrounding branches may be cut back to buds or branches pointing in the direction of such vacancy. By giving attention to these principles it is not difficult to so control the form of the tree as to have a well-balanced, shapely tree that will carry heavy crops without the danger of splitting to pieces or tumbling out by the roots, as too frequently is the case with ill-shaped and badly balanced trees.—*Chicago Farmer*.

HOUSEHOLD RECIPES.

WASHING POTATOES.—If potatoes are to be cooked in their jackets, a coarse cloth put into the water to rub them with, not only makes them cleaner, but saves time and the hands.

FEEDING A BABY.—Young mothers may not be aware that if the point of the spoon be held against the roof of the mouth it is almost impossible for the child either to choke or eject the fluid.

CURT PLASTER MADE AT HOME is economical, and is said to be highly successful. Dissolve one pint of French isinglass in one pint of warm water; to this add ten cents' worth of pure glycerine and five cents' worth of tincture of arnica; lay a piece of blank or white silk on a board, and paint it over with the mixture.

BEDSTADS.—If a bedstead creaks at each movement of the sleeper, remove the slats and wrap the ends of each in old newspaper. This will prove a complete silencer, and is well worth the trouble.

THE IRONING BLANKET.—Before beginning to iron, sprinkle the table plentifully with water and lay on the ironing blanket. This will hold it firmly in place and prevent all wrinkling and shoving about. Never try to iron with a blanket having wrinkles or bunches.

OATMEAL WAFFERS are relished by babies and other children, too. Take a pint of oatmeal and a pint of water, with almost a teaspoonful of salt. Mix, and spread on buttered pans. Make it just as thin as possible, and yet have the bottom of the pan covered. Bake slowly.

BROKEN NEEDLES.—A small vial, with a tightly fitting cork, can be kept in the work-basket or sewing machine and all broken needles put into it. It saves the annoyance of getting up from your work to take care of them, and if left lying around, they often cause serious trouble.

If it is necessary that the clothes of the Monday's wash should be left in water all night, do not leave them in suds, but after taking them from the boiler and draining them, put them in a tub and pour over them scalding water and let them lie in this; from this they can be wrung out, and after bleaching slightly will look much whiter, and certainly will have a more pleasing and cleaner odor than if left all night in suds.

BRIGHTENING TINWARE.—For scouring this cement (water lime) is the most excellent. Rub with a damp cloth dipped in the cement, then wash off with soap and water and dry thoroughly; then with a dry woolen cloth polish with the cement and rub off all adhering particles with another cloth. This method is much more satisfactory than if the ware is merely ground without polishing, while it is really very little work to one who knows exactly how to do it, and instead of running about to hunt up clothes, has them hung up in a convenient place ready for use.

CECILS.—Mix one cupful of rare roast beef, add one-fourth cupful of dry bread-crumbs, one-fourth of a small onion, grated, one teaspoonful of chopped parsley, one-fourth teaspoonful of pepper, and one teaspoonful of salt; stir in a little good stock and one egg, beaten. The mixture should be as soft as you can handle it. Heat altogether, and when it is cool, mould in the bowl of a spoon into egg-shaped balls, roll in fine crumbs and fry a light brown in hot lard. Make a gravy of one cup of stock, thickened with browned flour, and flavored with one teaspoonful of Halford sauce, and pour over the cecils.

CRUMBED HADDOCK.—Remove the bones and skin from cold boiled haddock and put them on to boil with half a small onion. Pick the fish into flakes and mix with a pint of fish, one teaspoonful of salt, half a teaspoonful of pepper, and one cupful of dry bread-crumbs; fill a butter-dish half-full of the mixture, then pour in what remains of your drawn butter, add the rest of the fish, sprinkle crumbs over the top, moisten with the water in which you have boiled the bones, and bake about twenty minutes. It must be more moist than scalloped oysters.

CELERY MAYONNAISE.—The yolks of two eggs, a very little mustard, salt, pepper, the juice of a lemon and some water. Beat all together. To prevent the same curdling, the eggs must be well beaten before adding the oil. Pour in the oil slowly, a few drops at a time, stirring until of the consistency of jelly. A few drops of vinegar may be added, or a small spoonful of boiling water. The celery must be well washed and then thoroughly dried in a towel; cut in small pieces in a salad bowl, throw the mayonnaise over the celery, mix all together and serve.

BREAD CAKES.—Soak some crusts of bread in milk, strain them through the colander very fine, beat in four eggs and a little flour, just sufficient to thicken the substance; add one teaspoonful of saleratus. Mix all to make a thin batter, and bake on the griddle.

LEMON PIE.—Take one lemon, grate the rind, squeeze the juice and chop the pulp very fine; a teaspoonful of sugar; the yolks of two eggs; beat well together, and add one cup of sweet milk; bake immediately; beat the whites of the eggs to a stiff froth, with two tablespoonfuls of sugar; spread on the pie when done, and put back in the oven to brown.

BOILED INDIAN PUDDING.—Stir into three pints of scalding hot milk enough Indian meal to make a stiff batter. If milk is not abundant water may be substituted. Stir in three spoonfuls of sugar and two of wheat flour, two level teaspoonfuls of ground cinnamon and one of salt; also three eggs well beaten with a little melted butter or a half-teaspoonful of chopped suet. This makes a large pudding. Do not have the pudding bag much more than half full of the batter, as it needs considerable room to swell. It should be boiled three hours at least. Serve with butter and sugar, or a sour sauce if preferred.

BAKED INDIAN PUDDING.—Boil a quart of milk, and add to it gradually one pint of sifted Indian meal. Stir well, so that it will not lump. Add three heaping spoonfuls of sugar, one heaping teaspoonful of butter, melted, one teaspoonful of salt, and two of cinnamon or a grated nutmeg. Mix three spoonfuls of wheat flour gradually with a pint of sweet milk, having it free from lumps, and stir it into the pudding. When the whole is just like warm, add three well-beaten eggs. If you wish a rich pudding, when it has been in the oven half an hour stir in a cupful of raisins, first dredging them well with flour, so they will not sink to the bottom. The raisins absorb the milk, and when they are used, an additional cupful of milk will be required. Bake two hours to a moderately hot oven.

INDIAN LOAF CAKE.—Mix a teaspoonful of powdered white sugar with a quart of rich milk, and cut up in the milk two ounces of butter, adding a salt-spoonful of salt. Put this mixture in a covered skillet and set it over the fire until it is scalding hot. Then take it from the fire and seal with it as much yellow corn meal (previously sifted) as will make it of the consistency of stiff boiled mush. Beat the whole very hard for a quarter of an hour more, and then set it away to cool. While it is cooling beat three eggs very light and stir them gradually into the mixture when it is about as warm as new milk. Add a cake of condensed yeast or a cupful of good strong yeast or a cupful of good strong yeast and beat the whole another quarter of an hour or more. Put the mixture in a turban mould or an earthen dish with a pipe in the centre, and be sure to have it greased well, as Indian meal has a most uncomfortable fashion of sticking. Cover the pan and set it in a warm place to rise, which (if all things are equal) it will do in about four hours. Bake it, when quite light, two hours in a moderately heated oven. When done, turn it out with the broad side down, and send it to a table hot and whole. Cut in slices and eat with butter. It can be made and left to rise over night, and will be just as good, if properly made.

MRS. BROWN'S CUP CAKE.—Three cups flour, two cups butter, one cup sugar, seven eggs; beat the whites separately; flavor with vanilla.

CRULLARS.—Six tablespoonfuls melted butter, six tablespoonfuls sugar, six eggs, flour to roll. Fry in hot lard.

WAFFLES.—One pound of flour, half a pound of butter, four eggs, one quart of milk, one tablespoonful of yeast; boil the milk; stir in the butter; beat up warm, and rise them.

MRS. MUGLTON'S NEW ENGLAND BROWN BREAD.—To four cups of Indian meal, and two of rye meal, add one quart of milk, (skimmed will do if perfectly sweet,) one cup of molasses, one tablespoonful of saleratus, and one desert spoonful of salt. Stir with a spoon, and bake without rising.

POP OVERS.—Four cups of flour, four eggs, four cups of milk, piece of butter size of two nutmegs, half teaspoon of salt; melt the butter.

A NICE WAY TO COOK CHICKENS.—The following is highly recommended to house-keepers: "Cut the chicken up, put it in a pan and cover it over with water; let it stew as usual, and when done make a thickening of cream and flour, adding a piece of butter, and pepper and salt; have cream and baked a pair of short cakes, made for pie-crust, but roll thin and cut in small squares. This is much better than chicken pie, and more simple to make. The crusts should be laid on a dish, and the chicken gravy put over it while both are hot."

CRACKERS.—One pint of water, one teacup of butter, one teaspoonful of soda, two of cream tartar, flour enough to make as stiff as biscuit. Let them stand in the oven until dried through. They do not need pounding.

POULTRY.

Hatching Time

The time for hatching is now in order, and the most interesting and recreative part of the routine of poultry raising will claim your attention and care. Before the time of hatching it is advisable to save the eggs from your best laying hens, if they are apt to the standard requirement, in preference to those laid by pullets. Each egg should be marked with the date it was laid and put away in a safe place where it will not get chilled, and turned every day or two if kept some time before setting. It is not always safe to trust a valuable setting of eggs to a broody hen until you have proved her staying qualities. The precaution for proving her sincerity is very important. Broody hens are sometimes fickle and not entirely dependable, and most especially if we have choice eggs of our own or high priced one from others that we do not feel disposed to risk by giving them to a hen on her first sign of broodiness. When a hen manifests a disposition to set by remaining on the nest over night, by clucking or ruffling her feathers when touched or approached, it is time that some action be taken to find out if she means business. Select a comfortable place in your hatching room, if you have one; make a clean nest, and mould and fashion it like the laying one; remove the hen at night and place her gently on the new nest, with a new porcelain egg under her, and put a cloth or board in front of her to keep her quiet. If she shows a determination to attend to business in the nest twenty-four or thirty hours containing the valuable eggs may be intrusted to her kindly.

Fowls for Eggs and for Market.

In raising fowls for market, liberal feeding is the first requisite, and confinement does no injury, provided the yards and quarters are kept clean. The earlier the chicks come in, the higher are the prices obtained, those weighing between one and two pounds being the more salable at first, but later in the season the weights should be in the neighborhood of two pounds, and larger still as the season further advances. As high as eighty cents per pound is sometimes obtained for prime early spring broilers, and from forty to fifty cents is not an unusual price for them when brought to market early, even when not of the best quality. The best breeds for producing market chickens are the Plymouth Rocks, Wyandottes, and Langshans. The last named possess the quality of fineness of grain in the flesh, but have dark legs. This fault is however compensated for by quickness of growth, and the pullets that may be kept over for laying have been known to begin nearly as soon as the Leghorns, which is a very desirable characteristic in a large breed, for the Langshans are nearly as large as the Brahmans. The Wyandottes are very plump and compact in body, and the chicks have a round, attractive appearance. Where the cocks are changed every year, and it is desired to combine egg production, weight, and quick growth, a good beginning may be made by using Cochins or Brahma hens with a Plymouth Rock cock, followed the next season with a cock of the Houdan breed. The third year a Langshan may

be substituted, and then a Wyandotte. Entirely new blood from different breeds will thus be introduced annually, invigorating the flock and improving it in all respects, but only pure-bred males should be used. A dash of Brahma blood, now and then, keeps up the size, but too frequent use of Brahma cocks conduces to leglessness of the growing chicks, though the adults may be compact. The crossing with a Plymouth Rock cock every alternate season would not do harm; for heavy weight of chicks smaller breeds should be avoided, as they transmit their qualities to their offspring very strongly. Those who breed chicks for market would do well to make use only of the special breeds for the purpose, as very often the profit expected may depend entirely upon such judicious management of the flock. First select well, and then feed well.—*American Agriculturist*.

Fowls Must Have Green Stuff.

It must not be forgotten that our poultry need some sort of green food all seasons of the year.

In winter we can give them cabbages or chopped turnips and onions from time to time; short, late-ripened (or rowen) is very good for a change; corn-stalk leaves chopped fine, they will eat with a relish.

In early spring-time, when the ground first softens from the frost, pasture *sods* thrown into their pens will be ravenously eaten by them; and as soon as the new grass starts (unless they have free access to the fields or lawn) they should be supplied with this excellent succulent daily. For the young chickens nothing is so beneficial and so grateful as a run upon the newly grown grass; and next to this indulgence they should have an ample supply of cut or pulled grass every day.

But of course while Jack Frost bears sway ("this sort of truck" is out of the question. Some careful poultry keepers sprout oats in boxes of earth, and allow chick birds to pluck the tender blades. The common Swedish turnip and the carrot are excellent for winter green poultry feed, and probably the most available and the cheapest vegetables that can be procured. If the fowls do not "tackle kindly" to them, when offered in a raw state, cook and mash, and mix with bran and meal.—*Co-operative Poultry Post*.

Coal Ashes for the Dust-Box.

Though road dust composed largely, as it is, of comminuted granite, is perhaps the most effectual destroyer of vermin that can be placed in the fowl's dusting box, it sometimes happens that undue neglect on your part in securing it early, or the unexpected and preternatural setting in of winter, prevent your having any on hand, and then the next best thing must be procured as a substitute. Some recommend wood-ashes, and perhaps if it could always be kept free from moisture, it might serve the purpose; but when it becomes damp, a caustic lye is formed, injurious to the eyes, mouth and feet of the fowls, and it is therefore unfit for use, though possibly a very small portion mixed with sand, which may be attainable even in winter, would not be objectionable.

Coal-ashes are really the best substitute, as they are not only free from caustic qualities, but contain burnt slate and other kinds of pure earthy matter, which the fowls like to scratch for and devour.

Even if your dust bin is properly filled with suitable earth, coal-ashes, when attainable, is an addition to the general arrangements of your fowls' quarters, which should not be neglected. Taken from the stove they are necessarily dry, a very desirable point in winter; and in case of accidental lack of supply for egg-shells, various bits of silica and other inorganic matter can be gathered from them to furnish the needed elements, and they are thus of value in more than one direction.—*Poultry Post*.

Poultry Raising for Young Men.

The editor of the *Co-operative Poultry Post* says: We frequently receive letters from youths in different parts of the country, asking advice upon the feasi-

bility of their sons undertaking the work of poultry raising as a business. We have sometimes replied to these communications privately, and are knowing of several instances where our recommendations in favor of this project for young men have been adopted, and, we are happy to add, have been successfully prosecuted by parties who have gone about this work sensibly and in earnest, and we advised. We still often have before us similar appeals, which we briefly answer, as follows:

The young men whose friends now ask us "if they begin this business upon a moderate investment of capital, can it be made to pay them by close attention and care," we answer yes, provided the young men have sufficient knowledge of the better methods in vogue for handling such live stock. If they have not, then we advise them to read up and study a little before commencing upon too large a scale. And when they shall have made some acquaintance with the details of the work they embark in, they can go forward with good hopes of success.

Our advice is, always buy books and subscribe to poultry papers before buying fowls or building poultry houses. Our books entitled "An Egg Farm," price 50 cents, and "How to Raise Poultry on a Large Scale," 25 cents, will save their cost twenty times over, if read and "inwardly digested."

There is yet more reading matter that we are preparing for the benefit of the young men to whom this article is devoted. We shall begin in the *Poultry World* for March a series of "Poultry Farm Papers," by W. H. Rudd, of South Scituate, Mass., proprietor of the Orrocco Poultry Farm, which has been in successful operation for twelve years. This series of papers will be valuable beyond price to any one contemplating raising poultry and eggs for market on a large or small scale.

LITERARY AND PERSONAL.

THE LIVE STOCK MONTHLY, with the motto, "We lead all, but follow none." (Such a motto *per se* may be nothing very specially of which to boast, as it may savor altogether of self-influeny, and in spirit may antagonize the admonition uttered "long, long ago," by one who spake, as never man spake, "Follow Me") is published at Portland in the State of Maine, at one dollar a year. A royal-quarto of 16 pages, in tinted embellished covers, and splendidly illustrated. When we say *splendidly*, we mean no empty compliment—those dappled roosters on the first page of the March number (1884) look, "for all the world" as if they were about passing off the paper page; but a deserved recognition of the delineator's art, that recalls the best efforts of *Rosa Bonheur*. The quality, the make up, the letter press, and the literature, are all of the better class; a creditable representative of the specialty to which it is devoted, "Come to the old pine tree."

REPORT upon the numbers and values of farm animals: On certain causes affecting wages and farm labor, and on freight rates of transportation companies. Fifty-six pages octavo, February, of Agriculture, Division of Statistics, Department, 1884.

FIFTH annual descriptive and illustrated catalogue of small fruits, grapes, etc.; 20 pp. 8 vo., handsomely illustrated, spring 1884, Newark, Wayne county, N. Y.

IMPROVED APPARATUS and Supplies for Cheese Factories, Creameries and Dairies; Child & Jones, Utica, N. Y.; established in 1865; square octavo of 56 pages, profusely illustrated. If anything were necessary to illustrate the progress of the period, in the manufacture of cheese and its correlatives, it might be found in this catalogue. Here are enumerated, figured and described, nearly a hundred different implements—from a 75 cent "cheeser" up to a \$500 steam engine, with any number of pans, churns, presses, &c., &c., as intermediates; with an additional list of chemicals, employed in the manufacture of "Butter and cheese &c." And yet many people are sighing, sorrowing and yearn-

ing, for a return of the "good old times"—Emotional vanity.

FEMALE HYGIENE AND FEMALE DISEASES.—By J. K. Shirk, M. D., member of the Lancaster City and County Medical Society. 107 pp. demi-octavo. In handsome msnsh binding. Published by the Lancaster Publishing Company, Lancaster, Pa. "*Know thyself*," is just as legitimate, as essential, and as imperative in its application to the physical, intellectual and moral condition of a woman, as it is to that of a man—indeed it is a very doubtful whether any intelligent being can willfully disregard this old mandate without involving themselves in at least physical criminality, and most certainly in a life of physical suffering. This excellent little work is divided into sixteen appropriate chapters, each pertaining to the different phases of female diseases, and briefly treated in plain language, as much as possible, divested of mere scientific technology; so that even "those who run may read," and not only read, but understand. The older we become the more we feel the conviction that the world will never become physically and morally regenerated, until it becomes so through the instrumentality of morally and physically educated wives and mothers. As a general proposition it is questionable whether the moral and physical relations existing between mothers and daughters has advanced much beyond what it was one hundred years ago, and the same may be said of their domestic and social relations. There is perhaps not a really intelligent mother in the land who does not see and acknowledge this, after age and experience has crept upon them, and when it is too late to rectify the blindness and the delinquencies of their early lives. But, "it is never too late to learn;" and if, through prejudice and false modesty, they have failed to properly educate their daughters, it may not be too late to apply themselves to their granddaughters, and as an auxiliary to that end we know nothing more succinct and comprehensive than the little volume we have under review. The mind that is too impure to peruse this little work, is certainly "fit for stratagem, for treason, and for spoils." All that is required is to elevate the mind of the reader above that morbid sentimentality, which too extensively prevails, even among those well instructed on other subjects, entirely ignoring the moral maxim, that "to the pure all things are pure," and, "blessed are the pure in heart, for they shall see God."

THE NORTHWESTERN FARMER.—A monthly journal for the farm, orchard, and household; Fargo, Dakota, March 1, 1884; a royal-quarto of sixteen pages, finely illustrated in live stock subjects, and rich in local and general agricultural and domestic literature. We can scarcely realize that Dakota has become the great bread producer of the country, and seeming to appreciate the divine maxim that "man cannot live by bread alone," she is in the effort to produce some of those other things which are equally produced from the divine energies. *Fargo, Dakota*, a name of which had "a local habitation and a name" (save in the traditional lore of the tawny sons of the forest), a hundred years after Lancaster was needed as the largest inland town on the northern continent, before many years may become the provider in chief, of our "daily bread." Be it so. Published by Edward A. Webb, No. 15 Seventeenth street, at \$1 a year ("invariably in advance.")

REPORT OF THE STATE BOARD OF AGRICULTURE for 1883. 383 pages royal octavo, with indices of subjects and of authors, and liberally illustrated; containing the addresses, essays, and other papers read before the society during the year, and a synopsis of the discussions had thereon, together with tabulated meteorological records of the year, a list of the county and local agricultural societies throughout the State, with names and addresses of their secretaries, and dates of holding fall exhibitions; from which we are informed that sixty-five local and county fairs were held in Pennsylvania during the year. Other counties either held no fairs, or made no report. Also a tabulated analysis of fertilizers issued by the Board of Agriculture, from March to December, 1883, and also a list of the same for 1882, from which we learn that the Board had had 813 analyses of different fertilizers made under its auspices, which, had it done nothing more, would be ample compensation to the agricultural population for its care and attention. The quality and mechanism of the work are super-

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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 householders.

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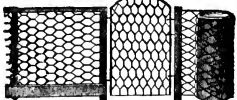


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JOHN A. HUESTAND, Publisher

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

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Pacific Express.....	1:37 a. m.	Harrisburg, 2:55 a. m.
News Express.....	6:25 a. m.	7:30 a. m.
Way Passenger.....	6:30 a. m.	8:50 a. m.
Mail Train via Mt. Joy.....	6:30 a. m.	10:50 a. m.
Mail No. 2 via Columbia.....	9:25 a. m.	11:25 a. m.
Niagara Express.....	9:45 a. m.	10:55 a. m.
Hanover Accommodation.....	9:50 a. m.	Col. 10:20 a. m.
East Line.....	1:55 p. m.	2:55 p. m.
Frederick Accommodation.....	1:55 p. m.	Col. 2:15 p. m.
Lancaster Accommod.....	2:30 p. m.	4:00 p. m.
Harrisburg Accom.....	3:30 p. m.	7:00 p. m.
Columbia Accommodation.....	7:30 p. m.	Col. 8:15 p. m.
Harrisburg Express.....	7:40 p. m.	8:50 p. m.
Western Express.....	11:00 p. m.	11:25 a. m.

EASTWARD.
 Mail Express..... 12:12 p. m.
 Philadelphia Express..... 2:27 a. m.
 East Line..... 3:35 a. m.
 Harrisburg Express..... 8:10 a. m.
 Columbia Accommodation..... 9:00 a. m.
 Seashore Express..... 12:58 p. m.
 Johnstown Express..... 2:20 p. m.
 Day Express..... 5:25 p. m.
 Harrisburg Accom..... 6:45 p. m.

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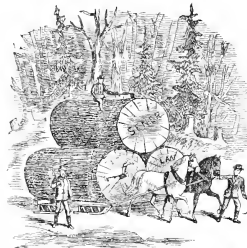
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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., APRIL, 1884.

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EDITORIAL.

APRIL.

"Then emerged from a rock bound cave—

With loudly mien and brow—

A haughty man whose presence made

The head—not heart—to bow.

His looks, though not forbidding, yet,

Had no inviting power,

One moment he was bright sunshine,

The next a frowning shower,

One day he'd wear a nosegay of

Spring-blossoms, and then, lo!

The next, their place was filled with flocks

Of winters drifting snow.

A crocus wreath his brow bedecked

Crowned by a daffodil,

This vacillating elf was called

"Spring's first-born child," April.

The name APRIL is derived from the Latin term *aperire*, to open. It is, practically, the opening month of the year, when trees unfold their foliage, and the womb of nature opens with young life. The first day of April has, by common consent, or perhaps traditionally, become "all-fool's day." This was supposed to refer to the uncertainty of the weather, or to the mockery trial of the Saviour; but in Hindoostan similar tricks were played at the Huli Festival, which occurred on the 31st of March; therefore, it more probably has a pagan or heathen origin. Some are inclined to think that the custom refers to traditions of the flood, when the "foolish" were left to the pelting of the pitiless rain. In France the April fool is called *un poisson d'Avril*—that is, an "April fish," and in Scotland a *gawk*, or cackoo. The wedding day is sometimes significantly called, "*My April morn*," and alludes to the custom of making fools of each other on the first of April.

The Latin name of this month is *Aperilis*, a contraction of *Aperilis* from *Aperies*, as stated above: French, *Avril*; old French, *Averien*; Prussian, Spanish and Portuguese, *Avril*, and Italian, *Aprile*. By our present computation of time it is the fourth month of the year, but anciently, and for reasons indicated above, it was considered the first or opening month.

The meteorological, romantic, and poetical characteristics—Dewy, showery, dowerly—usually attributed to the month of April, could be more appropriately transferred to the month of May; for, although it is usually showery enough, it is very seldom hoary and flowery enough, to entitle it to such a marked distinction. Nevertheless, it is always—"from first to last"—a busy month to the farmer, the gardener, the fruit-grower, the florist and the housekeeper. As the days advance and lengthen, and the temperature "warms up," it presents scenes of both outdoor and indoor activity. In Pennsylvania at least, and especially in Lancaster county, it is the great financial epoch of the year, a period of leasing and releasing; the discharging of old obligations, and the contracting of new ones; the vacation of old premises and the occupancy of new ones; a general effort to "make both ends meet," and the

starting point of a new annual career, and the anticipation of those "coming events," which now seem to "cast their shadows before"—in short, a season of prolific hopes in the realization of future possibilities. The thrifty farmer will now be engaged in cleaning up and clearing up; in finishing what he may have begun in March, but was thwarted in finishing, through the boreal ravings of that fickle and most capricious division of the year. The opening buds and expanding foliage will now reveal what has passed the previous winter unscathed or undamaged, and the time of sowing, planting, hoeing and weeding will have begun. Let the weather be as it will, and the warfare of the elements be ever so ungracious, before the end of the month it will become manifest that April has made its mark upon the esentcheon of progressive vegetation. April may obscure, but it cannot obliterate the development of the latent merchandize of nature. When the "full time" of the earth has come, meteorological adversities may retard, but they cannot defeat the operation of nature's laws. The intervals between "sunshine and shower" will furnish those states of preparation which precede earth's prolific "bringing forth" the fruits of her womb.

ABOUT DOGS.

"Well, Johnny, it seems to me you keep too many dogs about your house, if you desire to feed, clothe, and educate your large family of children with any kind of efficiency. Don't you think so?"

"Why, no! Darc is only de Bull, Spring, Ring, Towser, and de Wasser; de Bitch, de seven Baps, and de Ben, dats not many Togs."

Johnny was a poor, hardworking industrious man; the possessor of a large family, a half-starved horse, a very lean cow, and a dozen dogs—"more or less"—but his ruling love culminated in dogs; mainly, perhaps, because he thought dogs could "hoe their own row," that is, make their own living by stealing; and, inasmuch as they often "sneak" the children's bread, he only gave their stealing exploits the mild name of "sneaking." This is not a mere fancy picture, it has been realized in the past, and no doubt continues to be realized in the present, with a probability of being transmitted to the future. If a man desires to be poor and hard working, under compelled industry, it seems to us that Johnny's course ought to furnish him a first-class example.

But the keeping of a pack of worthless thieving curs about a house, is not only an injury to the householder himself, but it reaches out and effects the interests of the community, for no matter how useless or insignificant a dog may be, he is still a consumer, whether by foul means or fair means; and, not only a consumer but also a destroyer. Granting there may be some good and useful dogs, their cost to a community, a county, a State, or a nation may be inferred from the follow-

ing, clipped from the columns of the *New England Farmer*.

The Cost of Dogs.

An Iowa man has figured up the cost of keeping dogs in his State, and finds that they eat enough annually to feed 100,000 workmen, and counting in the damage they do the sheep farmers, the dogs cost the State \$9,000,000, while the education of all the children in the State is less than half that sum.

A Tennessee man makes out a similar condition of affairs in his State. He finds there are 300,000 worthless dogs, which consume food enough if fed to hogs, to make 30,000,000 pounds of bacon, which would be equal to feeding meat to 100,000 able bodied men a whole year. At ten cents per pound the bacon would be worth \$3,000,000, and if in silver would load down 94 two-horse wagons, and make a wagon train more than half a mile long. Again the worthless whelps prevent farmers from keeping 2,000,000 sheep, the mutton and wool from which would be worth \$5,000,000. Including the sheep now annually killed, the whole expense of keeping the dogs of the State amounts to the pretty sum of \$9,000,000. Tennessee expends \$3,000,000 for educating her children. Three dollars for dogs! One dollar for children.

Another writer, after making careful estimates of the damage done by dogs in the Northern States alone, finds it costs not less than \$33,000,000 annually to support our dogs, a sum that would buy 165,000 farms at government prices for land, or it would purchase 132,000 neighborhood libraries of 200 volumes each.

"THE BEAUTIFUL SNOW"

It, perhaps, would be impossible for any one to substantiate, that the winter of 1883-4 was the most remarkable on record, or even the most remarkable they had ever experienced or witnessed. In the present heat or cold, we are very apt to forget what they had been in the past; nevertheless, it is not often we have such a snow-storm in Lancaster county, as that which occurred Wednesday, April 9, 1884. It snowed without perceptible abatement from "morning till night," commencing about 7 o'clock A. M., and continued until about 5 o'clock P. M., during which time there fell, at least, twenty inches of snow. It would be impossible to state accurately the number of inches that fell; for, it began in a rain and ended in a rain; and during the whole day the snow was not entirely unmixed with rain; but from our personal observations, made about mid-day, in a place uninfused by storm-drift, there could not have been less than twenty inches, that remained unmelting after the fall. But this is not unprecidented, neither as to date, quantity or continuation. It can distinctly recall a snow that fell on Easter Sunday, as nearly as we can locate it, in the year of our Lord 1820. On that occasion it snowed all day, the peach trees were in bloom, and the

branches of many of them were broken down with the weight of the snow. We cannot locate the day of the month—nor yet the month itself—when that snow fell, but infer that it was in April. On Friday, the 12th of April, 1832, the last public execution took place in Lancaster county. We were in attendance as one of the "Volunteer Guard." As we ventured our weary way homeward on foot, the day after the execution, the most remarkable feature in our wayside observations, was the profusion of peach and cherry bloom. It was not the earliness, nor the lateness of the bloom that rendered the occasion conspicuous, but the abundance or profusion. A snow at that time, like that of April 9th last, would have made sad havoc among the peach and cherry trees.

The earliest date at which Easter can occur is the 22d day of March, and the latest date the 25th of April, so that the great spring snow of 1830, must have been between those two dates, but most likely in April, not far from that of the present year—a meteorological phenomenon repeating itself.

ENTOMOLOGICAL.

STRIPED APPLE-TREE BORER.

(*Saperda bidentata*.)

The *personae* of this insect may be readily recognized by the illustrations, hence it will be unnecessary to go into a lengthened description. Perhaps, however, it may be necessary to say that the colors are a mealy white, and a light brown.

From all the observations which have been made upon the history and habits of this insect it seems manifest that it requires three years to complete its transformations from the egg to the perfect beetle which deposits the egg, and that the deposition of eggs occurs late in June and during the entire month of July; therefore, the *precautions* employed to defeat such a contingency, should be applied before or during those periods named. Whal-oil soap, or other alkaline solutions, applied from the roots up to the branches, or nearly so, will prevent the females from depositing her eggs on trees that are so treated. As the eggs are usually deposited about the base, near the ground, it has been recommended to protect that part of the tree, from the first of June to the first of September by heavy stiff paper-painted—oil-cloth, tin, or sheet-iron, old cloth or canvass, and the earth heaped up a few inches about the bottom. If, however, the insect is present, and finds no apple trees in a condition to form a *nidas* for its eggs, they will resort to pear trees, quince or hawthorn, and it is said also cherry and ash. Long before we had identified them as destructive to the apple (forty years ago at least) we took our first specimens from a short experimental piece of hawthorn hedge, and we found them there at each returning season (July), and we did not then think of looking for them elsewhere.

If the appliances alluded to above have not been utilized, and the eggs have already been deposited at the bases of the trees, the difficulty of contracting their destructive tendencies greatly increases. If the *liquid* remedies were applied before the eggs were hatched, and the young had not yet penetrated the

bark, the application just then would be more effective than, perhaps any other time; but not so, if the base was only then protected by bandages, for that would only favor their development by shielding them from danger.

When the trees are very large and the bark is very rough their presence is not very apparent, even in their earliest periods of development; moreover such trees could support a limited number without sustaining any very serious injury. But when the trees are young and the bark relatively smooth, the presence of two or three larva for two or three years would perfectly girdle them and their death would be sure—indeed we have seen trees two and three inches in diameter at the base killed outright the second year. One advantage in young trees, from the discoloration of the bark, is that it can be seen where the



larva is operating beneath it, for during the first year they do not penetrate farther than the sap-wood. The larvae can then be cut out with a sharp knife, or if such mutilation is objectionable they may be drawn out with a barbed steel wire through an artificial aperture.

But if we are quite sure that all the "worms" have been dislodged the scarifications of the tree will soon be healed by the vital energies inherent in it. Their presence may also be detected during the first year by their "castings" accompanied by gummy exudations, which after a few hours rain become often conspicuous. In the winter they go down into the roots, below the surface line, and become torpid. An examination of the roots of trees infested, in the autumn after the worms have gone down, or in the spring before they have come up, might furnish an opportunity to destroy them with less disfigurement to the tree than if



made above ground. The third year they have gained sufficient cutting power to enable them to penetrate to the very heart of the tree.

We cut down a tree on one occasion over six inches in diameter that had become emervated through the attacks of the *Saperda*, and found it penetrated by both perpendicular and transverse galleries for a space of nearly three feet up from the surface and down into the roots, and yet externally there was little visible to indicate that the insect was present at all. On another occasion a neighbor brought us the stump of a small apple tree, which had been sawed off about eight months previously, because "it was sick."

Out of it we took fully a dozen of these larvae, and the stump itself had a resemblance to a piece of coarse sponge. The larvae were about two-thirds developed and had access to nothing but this stump.

If we had not succeeded "by hook or by crook," in dislodging this worm during its first or second year, nor have prevented the

beetle from depositing its eggs at the base of the tree, then the case involves additional difficulties. It is lodged in too deeply, and exposes no castings; therefore its locality is hard to find, and we are compelled to grope in the dark. If we can gain access to its gallery above the worm, through a small flanneo pipe were to pour in coal oil, or even hot water, we could effectively destroy all that these liquids reached. But *many* have been destroyed by this latter remedy, and also by the barbed steel wire.

The letters *a, b* and *c* represent the *larva*, the *pupa*, and the *imago*, or perfect beetle, about their natural size. The first is a dirty white in color, the second not quite so dirty, and the third nearly a silvery white, with two brownish stripes, reaching from the "head to the tail." Look out for the living beetle from the first of June to the first of September—we took a living specimen as late as September—they bore a hole from the inside to the surface of the bark, and make their escape therefrom in the form of No. 3, within the times specified above, although we have seldom captured them before the fourth of July.

We regard the preventive measures the most effective; but, of course, if these have been neglected or abortive, we must "go for them" by the best means we may be able to secure, although we will have to work comparatively in the dark.

The larva of the "Two-striped superda" is however not the only worm that infests the trunk of the apple tree. Eighty-three species of insects have been described and recorded as injurious to the different parts of the apple tree, from the roots to the mature fruit. Seven of which attack the trunk in the form of borers. Some of them—perhaps all of them—are, however, subject to the attacks of parasites, and this affords some consolation.

These insects, however, differ so much in their histories, their characters, their developments and their injuries, that each separate species would require a separate article, to properly "show them up."

FLORIDA WHIP-TAIL.

Mr. Benjamin Snably, of Florida, who is now on a visit to his native county, a few days ago very generously presented to us a splendid specimen of the above-named animal, and gave us some account of the dread with which it is regarded by some of his friends and neighbors in Florida, and especially those of African descent. It is known by different local names, wherever it happens to exist. Perhaps the most appropriate common name is "whip-tail" or "whip-tailed spider," as it belongs to the family *Tarantulae*, the typical genus of which is the *Tarantula*, which is nothing more or less than a large, brown, hairy, pulmonary spider (*Mypala Hoettii*).

In and about Mr. Snably's *locale* in Florida, the above named animal is known by the popular names of "Grampus" and "Mule-Killer"—one man, at least, alleging that its bite killed his mule. The term Grampus, as applied to this animal, as a popular name, does not seem to be at all appropriate. The Grampus is a cetaceous mammal, belonging to the Dolphin family, and lives altogether in the water (*Delphinorynchus orca* of Lin.) In

Texas and New Mexico it is called the "Vinegar-bug," or "Vinagrío," especially by the Spaniards and their descendants. In scientific parlance it is the *Thelyphonus scabrior* of Girard, and by that name it is known all over the scientific world.

These animals belong to a group in the class ARACHNIDA (including the spiders and their allies), called PEDIPLATI, because their palpi, or feelers, are developed¹ into large apparent feet, armed with claws similar to those of scorpions, crabs and lobsters—most like the last named—except that some of the genera have but a single claw.

The body of this arachnid is fully two inches long, and is of a deep chestnut brown in color, (reddish brown beneath); it has eight articulated feet, the interior pair of which are very long and slender; its *pedipalpi* are stout and apparently powerful, armed with claws, one of which is movable, like those of a lobster. The indications are that it is reptilian in its feeding habits, and that the excessively developed palpi is for the purpose of seizing and retaining its prey until its appetite is gratified.

The abdomen is terminated by an abrupt articulated stump, from the apex of which extends a long tapering tail, something like the lash of a whip—indeed, taking the stump and the lash together, they are not much unlike a common short-handled whip in miniature, from which is derived the common name of "whip tail." Scientific authors have recorded very little about the history and habits of this animal, but there seems to be a general dread of it among the common people where it is found, and many of them would rather encounter a rattle-snake than one of them, although there does not seem to be a well attested record of their poisonous qualities. Some years ago, Lieutenant Frazer, of the U. S. Army, sent us a specimen, from New Mexico, we think, and he also stated this dread the people have of it. He also stated that when excited it voided a pungent fluid that had the odor of sharp vinegar, and from this comes the common name "vinagrío." A species in the island of Martinique is by the French called "Vinaigrier," probably from the same cause. The largest species (*T. giganteus*) is found in old Mexico, and is two and a-half inches long. Mr. Snably represents that in Florida they are usually found under old logs, or lumber, and they are apt to domicile themselves in lumber yards. When discovered they make no attempt to escape, and only snap with their palpigorous claws, when goaded by a stick.

Of course, those who reside in their habitat ought to know best whether their bite is poisonous or not, and also the effect it has upon the object that is bitten. Judging from the organic structure we should regard them about as venomous as the Tarantula, the Scorpion, or the Centipede, and the injury sustained from their bite would largely depend upon the physical condition of the system of the man or animal at the time they are bitten, as well as upon subsequent contingencies. The very large *pedipalpi* of scorpions and whip-tails is given them for a purpose, and that purpose is to seize and hold their prey while they are devouring it. It does not follow, if one of these animals is found in a bed, that it is there

with vicious intent towards the human occupant of the bed. Most likely it may be there for the purpose of catching "Bed-bugs," fleas and other vermin. Therefore, if their services are not wanted for this purpose, let beds and houses be kept clean, as a simple remedy. It is said that scorpions visit houses for the purpose of preying upon the cockroaches, &c., which certainly is a great virtue in them. If persons are bitten or stung by them it is only because they have been the aggressors. There are many animals that only sting or bite in self-defense. At the same time, we would not recommend a reckless or too inquisitive course towards them. We have frequently been bitten or stung by our local spiders, centipedes and bugs, but have not experienced any ill effects from them, although sometimes accompanied by temporary pain.

INSECT LARVÆ.

Mr. F. A. Beates, near Willow Street, Lancaster county, has taken quite a number of insect larvæ, which he found alive and active during the first week in February. Our readers will remember that the same gentleman took a number of living larvæ in January—about the beginning of the month—an account of which was published on page four of the January number of the FARMER, under the caption of "An Entomological Phenomenon," but his last "take" were of different species from the first take, and were thirteen in number, five being Lepidopterous, six Coleopterous and two Hemipterous; but, as all are all more or less discolored by the liquid in which they were immersed, it is difficult to identify them specifically. The largest three appear to be common "cut worms," and are over one inch in length and half an inch in circumference. Being nearly black in color all distinguishing lines and other marks are obliterated. The six pectoral legs and the ten prolegs indicate that they are Lepidoptera, and belong to the Noctuidæ, which is a family of the worst destructives.

Three others of the same natural order, are from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch in length, light brown in color, and have faint lateral lineations. These may be immature individuals of the same species, or of allied species—perhaps Gortyna—but, as all the larvæ of this order are more or less noxious, the farmer cannot go wrong in destroying them.

Five are Coleopterous larvæ, and are from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch in length, and have the segmental divisions of the body very prominent and distinct. These are the larvæ of one of the "Soldier beetles," doubtless of the Chauliognathus Pennsylvanicus, and known to be carnivorous in its habits, feeding voraciously on other insects under ground, and therefore they are classed among the farmer's insect friends. The mature beetles are usually found in abundance on the bloom of the "golden-rod" (solidago) in late summer and early autumn. Then is their nuptial season, after which they disappear and are not seen again until the following summer, when the elderberry and the golden-rod are in bloom.

One specimen is the larvæ of a rove beetle (*Phibotanus*) completes the list of larvæ. This last species is usually found in decayed animal and vegetable matter; and, if not altogether innocuous, it is nevertheless not con-

sidered noxious. Some of the larger species of the family to which it belongs (Staphilinidæ) are frequently found in carrion, and also in animal excretions which is sufficiently illustrative of its gastronomical character. Two specimens of Capus or Phytogaster—sap-sucking Hemiptera (truebugs) complete the collection. These latter are enemies to vegetation when they occur in great numbers, and much prejudice exists against them in localities that have suffered from their attacks upon the buds of young nursery stock in early spring. As soon, however, as vegetation has sufficiently advanced to afford them a greater supply of succulent food, they prefer that to woody plants.

The past winter months have been bordering on the "severe"—at least it cannot be said that we have had an "open winter"—hence it seems not a little surprising that these insects and insect larvæ should have been found in an active or even in a vital state, on the snow, in the beginning of February of the present year. Did they appear in defiance of the ground hog's warning?

All this goes to show that in spite of the doctrine promulgated by some sanguine theorists, cold winters do not "freeze out" the insect world "worth a cent," and that cold winters may have even a less injurious effect upon them than unusually hot summers. In contemplating the details of collections made in zoology by scientists who have accompanied the various Polar expeditions, we find that they always, or nearly always, report collections in entomology. We might very naturally suppose that in those icy regions the temperature would be too low for insects to pass through their developmental transformations, but it seems to be otherwise. There are, perhaps, a less proportionate number of "winter killed" insects in the polar regions than there are in the temperate zones. On one occasion we noticed thousands of Perlidæ (shad flies) coming up through "rotten ice," on the Susquehanna river, that was fully ten inches or a foot in thickness. The ice was in that condition that when submitted to concussion it would fall into hundreds of "pipstems."

Such observations made on insect larvæ or "worms," if the farmer only pays some attention to specific details, may eventually enable him to discriminate between noxious and innocuous species. For instance, where he finds larvæ in the ground, on the ground, or elsewhere, that have three pair of feet on the first three segments of its body, then one or two segments without feet, followed by four pair of fleshy prolegs, then another segment or two without feet, and one pair of fleshy feet on the terminal segment, he may be pretty sure that he has before him the larvæ of a *lepidopterous* insect, whatever its size or color may be; and, as all of this order are destructive, the best thing he can do is to exterminate it at once. True, some of this order have a less number of feet than sixteen, but none have more. All the larvæ known as "span-worms" or "loopers," have a less number and among these are the "canker worm," the larvæ of the "currant moth" and many others, noted for their destructive habits.

On the other hand, when he finds larvæ that only have three pair of feet, and these on the first three segments, he may have before

him a *Coleopterous* larva; and, if it possesses quick and rapid cursorial powers, loves darkness, and attempts to hide itself, he may pretty safely conclude that it is predacious in its habits. It is also true that some of the larvae of *Coleoptera* (the woodborers) have no feet, and are poor pedestrians; but time, observation and opportunity will instruct him how, when and where to use discrimination.

A knowledge of these things is becoming every day more essential to the farmer, in his conflicts with destructive insects, and he had better believe it and act accordingly just now. It perhaps needs more that insects will come, but it is none the less a woe to him through whose neglect they do come. They are perhaps not altogether an unmixed evil, but, if permitted to multiply with impunity, that evil becomes disastrously manifest, and at a time, too, and with an intensity, that may battle the best remedies against their destructive progress. But there is no use in indulging in a universal alarm. Learn to discriminate and you may then find out the proper time when the alarm should "come in."

THE SEVENTEEN-YEAR LOUSTS.

Statements that have been made to the effect that the seventeen-year locusts are due this summer are said by naturalists to be erroneous. The locust year for this vicinity is 1885, and not 1884. The seventeen-year locusts appeared in Baltimore in 1851, 1868, and will appear again during the middle of May, 1885. A few specimens of the locusts may be found during May, 1884, but they will be members of a different brood. Most people seem to think that the seventeen-year locust occurs but every seventeen years in this country. This is all wrong, since it is found every year, but only occurs at intervals of seventeen years in any given locality. This year is the season for the seventeen-year locust in Virginia; next year is the season for the seventeen-year locust in Maryland. The locust lays its eggs in branches of trees. From these eggs soon after they are laid small yellowish larva, resembling already the future locust, though lacking wings, issue and work their way down the trunk of trees, following all the roots to their extreme tips, where the larvae fasten by means of a beak and draw their nourishment from the roots. After being in this position a long time, undergoing however, several moults, they attain their full growth as larva, and are found three or four inches from the surface of the ground adhering to the roots of different plants. Very early in 1885 they will undergo transformation into pupa, which in the month of May will work out of the ground to the surface, forming peculiar hollow cones of earth in which they undergo their last transformation and become full fledged locusts. Backing out of this cone, they appear on the ground still soft and unable to fly. In a few hours they become hardened and seek the nearest tree, in which they sing their love songs and mate.—*Baltimore Sun*.

AVOIDING THE HESSIAN FLY.

In a paper read before a Scientific Association at Minneapolis, Minn., last fall, it is stated that, contrary to general belief, the earliest sowings of winter wheat are not liable

to so great injury by the Hessian fly as later sown crops. A large number of observations were made in Perry county, Pa., and the farmers there are said "to maintain that the earliest sown wheat—that put in during the first week of September—often yields a good crop, while that which is sown between the 10th and 22d is badly infested, and the latest—that sown in the last week of the month—again escapes." According to the report of the paper, in the *American Naturalist* for February, the author thinks that the early sown wheat does not escape the fly, but it grows strong, and tillers much more than the late wheat, and the number of insects is not sufficient to weaken so many stalks so that they will fall. That later sown has less and the number of larvae to stalks is necessarily so increased that the straw is sure to break down, or even die outright, during the winter, before the straw has been formed. The author of the paper states that the spring brood does the mischief before harvest, hence many farmers never observe that the attacks of the fall brood causes a great reduction in the numbers of these insects, which are in the "flaxseed" or pupal form, and are frozen in their winter quarters. The absence of vitality in the wheat seems in some way to render the insects more liable to danger from severe cold, although there does not seem to be any more appreciable warmth in a living plant than in a dead one. It appears to the writer of the paper that the insects, by killing wheat roots, become in some measure the means of their own destruction, and that this is an "efficient cause checking to a great extent the excessive multiplication of this pest."

EXCERPTS.

GOOD care, under all circumstances and at all times, is a prime necessity to success in breeding fowls.

THE total number of live cattle shipped to European markets last year from the United States was 67,964; quarters of beef, 38,416; live sheep, 31,849; carcasses of mutton, 68,400.

THE Buckeye Land and Cattle Company was organized in Kansas City last week. Capital stock, \$100,000, divided into shares of \$100 each. A Mrs. Nancy Bainbridge took 249 shares.

"I BOUGHT a Shorthorn and yearling heifer and heifer calf in 1876; have bred from them 52 head of recorded animals in the American herd book, and have sold over \$4,000 worth of stock from them, mostly calves, and still have a nice little herd left on hand," says H. Talcott, in the *Group Bulletin*.

It is claimed that St. Joseph men have \$1,200,000 invested in the cattle business.

PENNSYLVANIA wool growers estimate their loss by tariff reduction at over \$2,000,000.

H. F. FRYE, a dealer of cattle in New York, failed last week for \$50,000, assets \$6,000.

SIDNEY, Kansas, wants stock yards. Sidney ought to have them if she has any cattle to ship.

WOLVES destroyed a good many cattle in Washington and Marion counties, Iowa, last winter.

CANNING MILK.—Mrs. S. W. W., Monticello, N. Y., suggests, through the Orange County *Farmer*, the idea of canning milk, which may in some cases be desirable, as, for instance, to bridge over a dairy drought:

"Visiting a farm a few years ago, some excellent coffee upon the table disclosed the presence of cream. This surprised me, for I knew the cows were dry, and there were no very near neighbors. I asked, and the answer was, 'O! that is canned milk.' Since then, I have done the same way two seasons, and intend to do so again soon. When the milk is brought in and strained, put it on to boil in a steamer, or yail set into a kettle of boiling water. As soon as it reaches the boiling point and begins to bubble, pour into glass jars already prepared and heated, and screw up immediately. Keep it where it will not freeze, and when needed it is ready for use."

THE annual session of the Colorado Cattle Growers' Association was held in Denver some time ago with a full attendance, and much important business was transacted. The topics discussed and the conclusions reached were of general interest and proved that the men engaged in the great industry represented in the meeting were a unit in their aims. It was estimated that the delegates represented between 400,000 and 500,000 head, or about one-third of the total amount of cattle grazed in the State at a low calculation, therefore they stood for between \$10,000,000 and \$12,000,000 of invested capital. The cattle interests of New Mexico are quite as extended as those of Colorado, and are equally in need of a compact organization. There are many points of material interest which need to be fully discussed and acted upon after discussion, and the sooner our cattlemen get to work and organize the better it will be for them.—*Los Vegas (N. M.) Gazette*.

A COWLEY county man is establishing a hen ranch on Grouse creek. He starts out with 1,500 grown hens.

CHEYENNE (Wyoming) *Leader*: A herd of 130 cattle in Granite canon, in which W. Densley is interested, has suffered terribly from a worm disease. The worm, believed to have come from the stomach, lodges in the throat, works into the windpipe, and the beast dies. Various remedies have been tried, all of which proved of no avail until turpentine was tried. Since using this none have died and it is confidently believed that it is a specific.

CONTRIBUTIONS.

FOR THE LANCASTER FARMER.

BROOKVILLE, Ohio, April 8, 1884.

MR. EDITOR—Dear Sir: Perhaps you have readers unacquainted with the geology of this valley (Miami), and, perhaps, unacquainted with the relation that geology bears to agriculture. As water is the mother of all rocks, so are rocks the mother of clays and sands that enter into the formation of soils. When a farmer sees soils and sub-soils he ought to know what kind of rocks they were derived from, or by seeing rocks he ought to know what kind of soil is in the vicinity. If lime is abundant in the rocks and these rocks decomposable, then it is likely

that it need not be added to the soil. If silica is a component part then, to keep grain from lodging and to keep cryptogamous plants from taking root on the stems and leaves of plants, potash or some other alkali should be added. If a farmer was a geologist and understood the constitution of the rocks from which his soil was derived he could tell what it needed to make it productive, at least in the way of mineral manures.

The clays, sands, and gravels of the Miami valley, are derived from the Niagara limestones. This rock is the surface rock of the whole valley, except a small portion of the country around Cincinnati, which is old Silurian; the Niagara being the upper Silurian. These rocks are the surface rocks of the blue grass region of Kentucky, immediately south of this valley and Nashville, Tenn., they dip under newer formations. The Niagara limestones are the surface rocks, as far north as Lake Erie, and as far east as the Niagara Falls. There is no country on the globe, where so great an extent of country has this kind of rock as surface rocks, except perhaps in Russia. There is no better country than the Miami valley and the blue grass region of Kentucky; erratic boulders of foreign origin are scattered all over this region. The erosion of these rocks was produced by the movement from the north of glacial ice, by which the clays, sands and gravel were produced, and the boulders transported from Canada in this ice. Perhaps some of the largest surface boulders were dropped from icebergs, as they floated south in a past glacial sea. These boulders make good building material. They do not interfere with the farmers operations. Inter-glacial specimens of tropical plants, and animals exist in this "drift," abundant specimens of pre-historic times, mostly lithological, are found all over this valley.

A farmer is not only benefited by being a good geologist, but he ought to understand comparative anatomy, physiology, chemistry, and botany, especially the physiology of plants. Meteorology and entomology are also sciences that farmers are much interested in or ought to be. In short, the farmers should be the most intelligent class of people in the country, instead of the most ignorant in a family being put to farming; he ought to be the most intelligent.

Snowed all day yesterday and part of last night; it is now about two inches deep. Cold. But little oats sowed yet, on account of wet weather. Farmers are making great preparations to plant a big crop of tobacco this coming summer, mostly of the Dutch and Spanish varieties, which seems to be most in demand now and commands the highest price. There will not be much Ohio seed leaf planted this summer.

G.

FOR THE LANCASTER FARMER.
PLANT SMALL FRUITS.

It is astonishing that farmers pay so little attention to small fruits for family use. On most farms is found an "orchard" consisting of a score or two of moss-grown and untrimmed apple trees, which with a few long-limbed, neglected peach trees in the dooryard and a few raspberry canes in the garden are expected to furnish the family with a sup-

ply of fruit. The fact is the farmer's table which ought to be bountifully supplied with the choicest fruits every day in the year, is less liberally furnished with these luxuries than city tables where fruit has to be bought in the market.

Fruit is not only a luxury but a necessity. Farmers eat too much meat and too little fruit during the summer season. As well fire up the parlor stove during dog-days and expect to be comfortable in its vicinity as to eat large quantities of butter and fried fat pork in the summer season and expect to "keep cool." The small fruits are more easily grown and have fewer insect enemies than any of the field crops.

First in order comes the strawberry. The last snows of spring are scarcely over when we see, here and there, a blossom, and in a few days the whole strawberry bed is white with bloom. In the early days of June, earlier than we expect it, a scarlet berry or two, and then a strawberry festival for a month.

Various plans are suggested for preparing the strawberry for the table, such as strawberry short-cake and the like. They are all devices of the enemy. Have your berries picked an hour or two before meal time. Remove the "hunks," sprinkle the berries with sugar and set them in the ice cellar to cool. When brought to the table a dash of Alderney cream and we have a dish *too good to set before a king.* City folk eat stale berries and milk and think they are reveling in strawberries and cream! Poor fellows, they have my heart-felt sympathy.

Spring is the best time to plant small fruits of all kinds. I set out a few Shaffer's Colossal Raspberries last fall, but I think they are all dead now.

The sooner strawberries are set out after freezing is over the better. Ground that is good enough to grow a good crop of corn or potatoes is rich enough for small fruits. An old garden is about the worst place in which to plant strawberries. Take a quarter of an acre or more especially for a fruit and vegetable patch. Mark the strawberry rows three feet apart and set the plants fourteen inches apart. Cultivate and hoe carefully, let the runners take root and form beds two feet wide, and next spring you may expect a full crop of berries. It is best to set a new bed every spring and plow down the old one after the picking is over. I find it more economical than to attempt to keep the old beds clean. For a small bed in the garden they may be planted in rows two feet apart, and plants one foot apart in row. The runners must be cut off as fast as they appear, and each plant will form a large stool and bear many fine berries. This mode is too expensive for extensive culture.

As regards varieties, any of them are satisfactory when they come to the table, but some kinds are more prolific than others. The old Wilson is still preferred by some on account of its productiveness, but the berries are small and sour. I much prefer the Crescent Seedling. It is a hardy and vigorous grower and wonderfully productive. It is rather acid when it first colors, but has more of the wild strawberry flavor than any other. It is a beautiful scarlet color and every berry ripens perfectly and no green tips. Because of its

hardiness and productiveness and its ability to stand neglect it has been called "the lazy man's strawberry." Very well. Not many of us want to hoe strawberries, or anything else, for the fun of the thing, and if we get the best returns for the least labor from the Crescent it is the berry for the multitude. Those who have failed to raise other kinds should try the Crescent. It is a pistillate variety and should have some plants of Charles Downing, Sharpless, or other staminate variety set near it. I find that one row in ten of Charles Downing will fertilize the lot perfectly.

The Captain Jack, Bidwell, Sharpless, Chas. Downing, Cumberland Triumph, and many others are staminate, or perfect flowering plants and are preferred by some. The Sharpless grows to an enormous size, quality only medium.

Next after strawberries come the raspberries. Of the black varieties the Doolittle is an old and well tested variety, and the Gregg and Souhegan are well spoken of. The black caps are best for drying, and the red varieties are more suitable for table use and for canning. Of the red varieties, the Philadelphia and Brandywine are rather sour berries and are excellent for canning. Canned raspberries retain their flavor better than any other fruit. The Turner and Cuthbert are well tested varieties, and the Franconia is a delicious berry for table use.

About the time the last raspberries are picked the early blackberries are ripe. I am thoroughly disgusted with going out to the woods and hills to hunt wild blackberries. Blackberrying in the wild woods and hills is supposed to be poetic business, but a trip or two knocks all the romance out of it. One comes home stung by hornets, infested with ticks and with garments in tattered rags. Better take a few rods of ground and plant blackberries at home. The old Kittatinny is as good as any. I think there are as good blackberries in the woods as any in cultivation if they were brought home and domesticated. Well ripened blackberries are delicious dessert fruit. They should hang several days after they turn black and should drop readily when shaken. The core is then ripe and the berry soft, juicy, sugary and melting. No fruit is more wholesome, toothsome and appetizing than good ripe blackberries.

Currants and Gooseberries are difficult to raise because of the currant borer and the currant caterpillar. Grapes may be grown by anyone who takes the trouble to plant the vines and prune them.

The subject of planting fruits may seem threadbare, and my only excuse for offering it is that not one-fourth the farmers' families in this country have a supply of fruit the year round of their own growing. If they would raise an ample supply of it they would use vastly more of it, and they would find it to their advantage in a pecuniary way, and also beneficial to their health. I am not a nurseryman, do not offer plants for sale, and consequently have no axe to grind.—*J. C. Lincoln.*

Mr. Judge of Litchfield, according to the *London Truth*, has sold three Hereford cows to an American breeder for \$3,400, the highest price ever yet paid for that stock.

SELECTIONS.

COMMERCIAL FERTILIZERS.

OFFICE OF BOARD OF AGRICULTURE,
HARRISBURG, Pa., March 10, 1887.

More than once since the passage of the act to regulate the manufacture and sale of commercial fertilizers, (Act of June 28th, 1879), a doubt has been expressed as to the reliability of chemical analyses as a test for commercial fertilizers. Not having any record of such a test, and being in a position to give the matter a fair trial, it was decided to divide homogeneous samples among six of our best chemists, who should make an analysis without knowing that such a test was in progress. A quart of acidulated South Carolina rock was carefully selected from a large pile and after it had been thoroughly pulverized, in a mortar, to ensure a thorough mixing, sealed samples were sent to the following chemists, who are all recognized as experts in chemical analyses, viz.: F. A. Genth, of Philadelphia; S. W. Johnson, of Connecticut; W. H. Jordan, of Pennsylvania; G. A. Leibig, of Maryland; S. P. Sharpless, of Massachusetts; T. K. Wolf, of Delaware. Of course, with a sample of dissolved South Carolina rock nothing was detected but phosphoric acid, and of this in the order above named, these authorities gave the following results: 16.32 per cent., 16.34 per cent., 16.39 per cent., 16.37 per cent., 16.33 per cent., and 16.00 per cent. These results show the greatest variation to have been thirty-nine hundredths of a pound to each hundred of fertilizer, or a trifle over seven and three-quarters pounds of phosphoric acid to a ton of fertilizer. The greatest variation for an average was twenty-nine hundredth of a pound to one hundred of fertilizer, or at the rate of a little more than five and three-quarters of a pound per ton of fertilizer.

It was well known that all chemists do not follow the same method, hence two who were known to pursue exactly the same process were selected and another sample of a different selection sent to each. In order that your readers may better note the variation in results I give them in full:

No. 1. Soluble phosphoric acid 9.95, reverted 2.15, insoluble 4.04, total phosphoric acid 16.13, available phosphoric acid 12.10, estimated value per ton \$27.47.

No. 2. Soluble phosphoric acid 9.58, reverted 2.76, insoluble 3.82, total phosphoric acid 16.16, available phosphoric acid 12.34, estimated value per ton \$27.59.

To the first example the above five chemists assigned the following values per ton; \$29.01, \$29.53, \$29.65, \$29.46. In all cases the value is calculated from the standard of the Connecticut experiment station.

The effect of the law has been to raise the actual value of fertilizers even in the face of a decrease in selling price, and we think our records prove that the increase has been more than three dollars per ton, and good judges have estimated it at five dollars per ton. At the former figures it means a saving of over \$2,000,000 annually to the farmers of Pennsylvania who use this class of goods.

Respectfully,

THOMAS J. EDGE, Secretary.

THE TWO CATALPAS.

A few weeks ago we quoted the opinion of Mr. A. S. Fuller, to the effect that *Catalpa speciosa* was not a distinct species, but only a Western variety of the *Catalpa bignonioides*, the form generally seen at the East. In opposition to this view it was stated that Dr. Engelman, one of the highest authorities, agreed with Dr. Warder in considering it a true species, and that this judgment was endorsed by Professor Sargent and accepted by Dr. Gray. Aside from this question of botanical interest there remained one of practical importance as to the relative value of the two trees for economic planting, and we accepted on this point the experience of Mr. Robert Douglas, the most extensive grower of seedling forest trees in the country. Mr. Douglas considers the *speciosa*, from its superior hardiness, its greater rapidity of growth and its habit of running up into a larger trunk, altogether superior to the other as a timber tree.

We have received several communications from persons whose opinions on the subject are worth recording. Several of them are given below. All the writers agree in pronouncing the Western *Catalpa* preferable for forest planting, although Professor Meehan says that, in the absence of any tests made in the East, he would as soon plant the Eastern species here. On the botanical question Professor Budd, an excellent observer, differs from the other authorities and holds that the Western form, although a harder tree, is not a good species.

PROFESSOR WILLIAM R. LAZENBY, of the Ohio State University, without going into detail, writes that the "position taken by the *Press*, in regard to the hardy *catalpa*, is correct."

PROFESSOR W. J. BEAL, of the Michigan Agricultural College, writes: "In Central Michigan we have both species of *catalpa* in cultivation, and both have fruited for some years. *Catalpa speciosa* is a trifle the most hardy, though this has been somewhat injured by some of our winters when the thermometer goes to 22 to 30 below zero. *Catalpa speciosa* grows most rapidly and is much less inclined to make a spreading top, i. e., it runs up slim. There is some difference in the fruit and seeds. From all the specimens I have seen I feel certain they are distinct, and as much entitled to rank as two species as are white ash and black ash, silver maple and red maple, white oak and burr oak, black walnut and butternut. *Catalpa speciosa* is much more suitable for planting as a timber tree."

PROFESSOR THOS. MEEHAN, botanist of the Pennsylvania Board of Agriculture, writes that he was led to look indifferently, in the first instance, on the claims of the Western form of this tree to distinctiveness solely because of what he considered a trade trick in calling it the "Hardy *Catalpa*." When the Western men came to "boom" their new-found variety by insinuating that the rapidly-growing, hardy Eastern species, with its durable timber, was utterly worthless, it is no wonder that those unacquainted with the actual facts came to regard the difference between the two as a matter of no practical importance. "But," he adds, "one in my posi-

tion has to take special pains to divest himself of prejudice, and I have endeavored to get at the actual facts. I have no doubt but the Western plant is a distinct species, as species is generally understood by botanists. I feel sure that on the Western plains the trunk grows straighter in *C. speciosa*, and in this respect it is a better timber tree for that region than *C. bignonioides*. Its constitution is better suited to dry, cold winds, and it would grow better under these circumstances than the Eastern species." Dr. Meehan, in conclusion, objects to the name "Hardy *Catalpa*," as implying that of "Tender *Catalpa*" for the other. He would prefer the terms "Western *Catalpa*" and "Eastern *Catalpa*."

PROFESSOR BUDD, of Iowa, considers the marked difference in the constitution of these trees as one of climatic adaptation. The Western *catalpa* is, no doubt, the tree for the Mississippi Valley, but he sees no need of making a new species of it. The Menzies spruce from the east and west sides of the Rockies is botanically one, and yet this spruce from the Eastern side of the divide is the hardiest of conifers in Iowa, and from the Western side it is tender as a peach. The Western box-elder has proved hardy at Abbotsford and Quebec, where the Eastern form would not live a year.

MR. SUEL FOSTER, of Muscatine, Iowa, writes an interesting letter containing a history of the discovery of the new species—many details of which were published in the article of Mr. Douglas in these columns. The winter of 1855-6 was exceptionally severe, and in the spring, out of several hundred young *catalpas* in his nursery from seed gathered in different places, only half of them survived. Some *Catalpa bignonioides*, ten years old, were also killed to the ground. As the sprouts from the roots came up in the spring, the difference between those which were winter killed and those which survived the frost was noted and soon all practical planters in the West learned to select the species native to that region.

MR. GEORGE L. MILLER, of Omaha, an extensive and successful planter, writes from a practical standpoint: "Several years experience with the hardy variety, through a succession of severe winters and trying spring changes of climate, including long continued cold and severe drouth, enables me to say that out of my many thousands of these trees transplanted from the nurseries of Mr. Douglas I have not lost one from cold. Mr. Douglas believes, and I agree with him, that the *speciosa* can be planted as far North as 43°. My own planting is in the latitude of 41°."

EX-GOVERNOR ROBERT W. FURNAS writes from Nebraska: "That the *speciosa* is distinct from the *bignonioides* I have no doubt. All in the West who have given thought and study to the subject agree. There is a marked difference in the leaf, bloom, time of blooming, bark, wood and general appearance of the trees, as can be seen by comparison. Here, in the West, the *speciosa* is as hardy as the oak. The common, or *bignonioides*, is tender, and will not pass our mildest winters. As to the durability of the common I know nothing, not having tested it, or know of it

being tested. It may, or may not, be equal to the species in this respect."

To this protracted but interesting symposium we will add a word of advice, intended for any who may be preparing to plant the catalpa for fence posts, telegraph poles, railway ties or any other economical purpose: Let the Eastern catalpa alone.—*Phil. Press.*

BAD BUTTER AGAIN.

The demand for cheap articles of all kinds stimulates invention and activity to supply them. Most people forget that a staple article of any description cannot be produced and sold below certain well established rates; and therefore they fall as easy and even as eager victims to those who profess to be able to supply genuine commodities below standard prices. The commodities so sold must, of course, be of inferior quality, more or less adulterated or counterfeit. Formerly the ingenuity of man in this line was mainly exercised in the production of textile and other fabrics which could be sold at low prices and guaranteed as good as genuine, but latterly the adulteration of food appears to be taking the lead of all industries of this description.

The New York Legislature is now conducting an investigation on the adulteration of food and its effects on the public health, which is bringing out some remarkable facts. Butter has become a favorite article for these experiments in adulteration. Witnesses before the Legislative committee, a few days ago, testified that 75 per cent. of all the butter invoiced from Chicago to New York is bogus, and that nearly all the wholesale dealers in butter handle imitation goods. A New York dealer testified that grocers in that city generally buy a tub of pure butter so as to have in the store, but that they sell five tubs of oleomargarine to one of butter. If a woman does not like oleomargarine at 35 cents, the witness declared she is shown some of the same make in another tub at 34 cents, and can as a rule be depended upon to say, "Oh, yes, that's better. I'll take some of that." It was computed by another witness that the sale of oleomargarine lowers the price of butter from five to ten cents per pound for the New York dairymen. Several witnesses testified as to the character of the imitation butter made in Chicago and sold in New York. Some of the witnesses were manufacturers of the stuff, and naturally claimed that all its ingredients were healthful. One of the manufacturers who testified—a Chicago man who places 10,000 pounds of butterine a day on the New York market—undertook to tell how the butterine was made, but the report states, "left the members of the committee in a dense fog on the cooling process, on the plea of wishing not to give away the secrets of the trade. He was not willing to tell the committee what ingredients he used, but he felt confident that they were not injurious, though he had never asked the advice of a chemist on the matter. He denied that hogs which had died of the cholera or any other disease were used in making butterine, but declared at the same time that his patent purifying process was sufficient to eliminate all germs of disease, if such hogs were turned in with the others." An ex-manufacturer testified that butterine is half raw hog's fat

and unhealthily, as the lard is not made hot enough to destroy the animal germs in it.

Of course butter is one of the long list of food products which are imitated or adulterated. That many of the adulterants and substitutes are innocuous is probably true, but that only mitigates the evil to the extent of indicating that the majority of vendors are content with robbing their customers, and do not insist on poisoning them too. Not only the consuming class, but the honest dealers, suffer from the sales of sophisticated articles of food, for the man who deals in the imitation can afford to undersell his competitor who handles only the genuine article.

Just how all this can be helped no one can say. A law compelling the naming of the article adulterated at its true worth and character might do some good. Experience shows us that in a measure all such laws have been failures. The best way to get good food is to be willing to pay a fair price for what is genuine or not to patronize any dealer unless he is known to be an honest man. We will all be honest when it is drummed into our heads that it pays.—*Evening.*

SELECTING SHADE TREES.

The matter as to the selection of the best kind of shade trees was brought before a meeting of the Massachusetts Horticultural Society at a recent date, and thoroughly and ably discussed by the members. W. C. Strong, whose long and extensive experience entitles his opinions to great weight, said that he sold more of the rock maple than all other shade trees together. We understand this name to apply to the sugar maple, although sometimes used for the black maple, which exceeds the sugar maple in rich and luxuriant foliage. Mr. Strong thought its shade too dense, the sun's rays not penetrating the foliage, and the soil remaining wet beneath the large trees. The horse chestnut was still more objected to as being too dense, and dropping its leaves too soon in autumn. He therefore regarded the elm as superior, an opinion generally agreed to by the members. The white and the cut-leaved birches were recommended for their airy form. The oak was particularly recommended, but the Norway maple was pronounced best of all.

There is a serious objection to the American elm, not mentioned by any of the members, which would make it especially objectionable to farmers. It sends its roots near the surface of the ground to unusually long distances, exceeding in each direction the height of the tree, and these roots draw hard upon the soil. It has been estimated that for every mile planted with a line of elms a strip of soil four rods wide is spoiled or greatly injured for farm purposes, making a loss equal to seven or eight acres. The sugar maple is badly injured for ornament in many places by a twig-borer. The cut-leaved birch, as Mr. Strong remarked, is a fine tree for ornamental planting, to which the black birch might be added as one of the very best, having none of the faults mentioned. Another faultless tree is the sweet gum, handsome in form and foliage, and the leaves assume a brilliant crimson in Autumn.

Marshall P. Wilder said that the tulip tree

is one of the most desirable on his grounds. He recommended also the linden, the ash-leaved maple, the cut-leaved birch, and the magnolia acuminata or cucumber tree. J. McCallough, of Cincinnati, regarded the tulip tree as the most beautiful of all, although it has a narrow geographical limit. He thought the Norway spruce the most valuable for shade and roadsides. John B. Moore said the objection that the elm was liable to the attacks of the canker worm is of little weight, as it is easily kept off by any one who will take the trouble. No winds will break its limbs unless they are loaded with ice. He recommended evergreens for shelter, but they should be some rods distant from the plants sheltered. He cannot make grapevines grow nearer than two or three rods to a wood. The white pine is one of the best, but the hemlock was regarded by him as the most beautiful evergreen. He had seen them in New England five or six feet in diameter, clothed with limbs to the ground, "perfect in shape and of wonderful beauty." We find that the hemlock will bear almost any amount of pruning, if it is done in the spring before the commencement of growth. In one instance a line of hemlock trees, intended as a moderate screen, having become too tall, were cut off to half their height. They soon sent out a profusion of side branches, and in a few years were covered with a dense mass of beautiful foliage.

THE OPINION OF A DAIRYMAN.

G. A. P. Melonough, N. Y., writes: "I notice a recent assertion of Dr. Sturtevant before the Dairymen's Association that breed largely determined the value of a cow for milk, butter or cheese, and that breed went before feed. I cannot agree with this, nor do I think that practical dairymen can be made to believe it. If there is any truth in the statement that breed is before feed for milk, butter or cheese, then if a man had breed of some particular kind he would have all that could be needed for large returns and success in his business, and feed would be of secondary importance, and a lack of it would not materially affect the receipts. Experience teaches me that this is not true. I commenced dairying the place I now occupy five years ago with a herd of 18 native cows in fair condition. I made 130 pounds of butter per cow without grain; was not satisfied and concluded I could do better. Next year the average was 150 pounds per cow, next year 180 pounds per cow; in 1882 200 pounds per cow, and in 1883 18 cows, three of them 18 years 2 years old, gave 1,500 pounds of butter. In these five years the product has been increased from 130 pounds per cow to 250 pounds, and mostly the same cows; and the increase in product has been in direct proportion to the increase of extra feed. The cows are all native stock, without any breed or blood more than can be found in any common dairy, and are mostly of my own raising. The doctor would probably tell me that Mr. Crosier makes 300 pounds or over from a cow from a larger herd than mine, of Jerseys and grades, which is undoubtedly true, but if we were to examine the matter closely we would probably find that the extra care and feed would easily make all the difference in product. Then,

again, there are here herds of grade Jerseys and Ayrshires that are kept in the usual manner, running in pasture from spring till fall without any extra feed, as long as they can get a living in the lots, and if the doctor's theory were true they ought to give good returns, for they have bred, which is before feed. But I know of herds of such cattle used for this treatment giving only 125 pounds of butter per head—barely enough to pay their keeping, to say nothing of risk, labor and expenses."

MATING OF FOWLS.

Many persons who breed fowls do not give proper attention to the mating of the fowls. This is very important when the permanency of the colors is sought, to say nothing of the points that make the fowl a competitor in the show room or the yard. A flock of white Leghorns are seemingly alike to a novice, but the breeder who mates them sees quickly many defects that might be overlooked by one not an expert. Although the comb is a useless appendage yet thirty points in the full complement of one hundred are devoted to the head of a Leghorn cock, which makes it imperative to begin examination at the beak, following all the parts of the body to the feet. In order to breed chicks that preponderate as the possessors of the greater number of desirable points the defects, if any, existing in the hens, should be corrected by the reverse conditions existing in the males. Then the relative ages of the fowls should be considered, and every indication that may enlighten the breeder in any manner carefully noted. The fact that the fowls were procured from a reliable breeder does not insure a flock of young birds like the parents, for the breeder himself is compelled to use care in mating, and this care must be exercised annually, or failure will be the result. A flock of dark Plymouth Rock hens, if mated to a cockerel of dark color, may produce black pullets, and light fowls may be the parents of cockerels nearly white. The slightest twist in the comb, or uneven serration thereon, is cause for rejection, for the tendency is to breed true to feather and form.

The above is applicable to birds of the best markings, but the system is demanded also on the farm. In crossing barnyard fowls the thoroughbreds should be used, and much depends upon the range and manner of feeding. If the fowls have a run over an extending area, and are expected to derive a portion of their food by their activity, the mating should be done by selecting cockerels from the Houdan, Leghorn, or Hamburg breeds. If the hens are very small, crossing with cocks of the large breeds, such as Brahmas or Cochins, is not the better plan, as the medium-sized breeds are more suitable for the first cross. Mating small cocks with large hens is an excellent plan and while some of our best breeds possess tall combs it is more desirable to cross with the rose combed varieties for protection against extreme cold in winter. If chicks for market are the preference, the hens should be mated with Plymouth Rock or Wyandotte cocks, but if the object be the production of eggs exclusively, select cocks from the non-sitters. The best fowl for a combination of purposes is yet to be discover-

ed, as no particular breed possesses every trait necessary, but the Langshan is not inferior to any other variety in many respects. It is a large sized fowl, matures early, and lays well, while the chicks grow rapidly, but the legs are dark and the color of the feathers is black, which is often objectionable. This objection, however, rests upon but little cause, as the flesh is fine-grained and the skin white. In mating fowls the breeder should first consider what he wishes to breed for, and then carefully acquaint himself with the characteristics of the several kinds of fowls, the variety best suited for this purpose, receiving the preference.—*City and Country.*

ORNAMENTAL TREES.

The Silver Spruce is one of the handsomer of evergreens of the large size and is really a very beautiful tree when set singly with room to spread and shoot up, and needs no training except a few very low limbs after ten years growth.

Next to these for beauty, size and durability is the Norway Fir. For wind-breaks these may be planted in clumps or rows, as the case demands, and they are not only beautiful and hardy, but of efficient utility in moderating the violence of storms, of high winds and winter's cold where the location is high, and we have never seen them broken and disfigured by sleets, as is always the case with the black and white pines. These need no trimming except a few low limbs when they become large.

For a smaller tree, of the evergreen family, the Hemlock spruce is very graceful and hardy either singly or in clumps and makes the most durable hedge of any evergreen we know of.

All of these are healthy and handsome trees for large grounds. Then for smaller trees, not so hardy, though very ornamental, comes the Chinese and American arbovitae, much varied in appearance and colors and only suitable for single setting or figure groups, or for edgings of clumps of trees or flower beds, and lastly, the "box bush," now nearly out of fashion an account of being too common, though none the less beautiful to behold.

The larch is beautiful in summer, but loses its foliage and does not deserve a place among evergreens.

Among deciduous trees the variety is so great that we shall not attempt a lengthy description here. The most fashionable, of course, are foreigners naturalized. Yet none of these exceed in beauty our own native Ashes, Walnuts, Gums, Birches, Maples, Hickorys and the various Oaks and Beeches for large trees; or our Dog-woods, Hawthorn Wild Plums, Sassafras and burning bushes, for trees of smaller growth. At the present time Maples of foreign origin, in this section, are very popular, and they are a very pretty and clean silvular tree when not "lobed off like the French horse tails and the sportman's setter dog or rat terrier's ears!"

But to our taste no Maple equals our own native tree, found at the head of every spring of water, and which thrives and grows beautifully on any well-kept lawn.

WHAT GRASSES SHALL I SOW?

It has been repeatedly shown that a judicious mixture of several varieties will produce

a larger yield than can be obtained where one variety is sown by itself. This is a rule in nature as well as in farming. Many sorts will usually occupy the ground more completely than one sort and help keep out the weeds. "Every species has some special niche to fill." Animals have their likes and dislikes. A grass may be thrifty, but not very nutritious. It may be native to the country where it grows, but this is no sign that it thrives better than would a foreign grass. As an illustration, we have only to think of the success of some of our worst weeds, most of which are foreigners.

There is no one model grass—a general-purpose grass—any more than there is one best kind of horse, sheep, cattle, wheat, corn, potato or apple. What do you want it for? After this is answered, any one with the requisite knowledge can make a selection.

Some grasses start too slowly in spring, or they are too sensitive to frost or drought, the stems are too woody, the leaves too thin, the tops too short, the aftermath is of no account, or the herbage is bitter or unnutritious. Is the grass needed for one year? Then the seeds must be rather large and germinate quickly, and soon produce thrifty plants. It is to the advantage of a grass if it seed freely, if the seeds are large and healthy.

The success of grasses depends very much on the supply of moisture. Liberal Spring rains, with mild weather, make a thrifty growth in meadow or pasture. For some of the Northwestern country a grass must root very deeply to endure dry weather for months. It must sometimes endure freezing with bare ground, with the mercury down to 40° or 50° below zero, or endure a burning sun, with the mercury at 100° or more in the shade. It must not be killed by fires in dry weather. In the South it must stand much heat, much moisture, much drought.

For alternate husbandry a grass must not be hard to kill, like quick grass.

With a large area of meadow land it is often convenient to have different sorts of grasses, that they may not all be fit to cut at the same time, thus prolonging the season of haying. For a meadow they should mature about the same time. For pasture the time of flowering, or of most rapid growth, should vary and extend from early spring till late autumn, or in the South it should extend over a good portion of the year.

M. Goetz found out what grasses were best adapted to his soils by a slow process of testing each separately; then he used a mixture of the seeds of those species which he had found did the best.

In England thirty-nine species or more of true grasses are recommended for use by some one. Besides these, twenty-one species of clover, or other plants, are on lists for pastures or meadows, making about sixty species or varieties in all, a single mixture often containing twenty or more kinds.

Moisture makes the meadow. A free and correct distribution of moisture will make good pasture, even on soils of inferior quality. Pastures on poor soils in Wales and Ireland will improve under treatment that would be quite insufficient on the Eastern Coast of England.

In a recent admirable essay by C. L. F. De

Laure in the "Journal of the Royal Agricultural Society" for 1882, he names the five following coarse grasses as most valuable for permanent pasture:

Dactylis glomerata—Orchard grass.

Festuca pratensis—Meadow fescue.

Festuca elatior—Tall fescue.

Phleum pratense—Timothy.

Alopecurus pratensis—Meadow foxtail.

He says these five should form the bulk of all good pastures on good soil, either for sheep or cattle. The most valuable finer grasses, in his opinion, are:

Cynosurus cristatus—Crested dogstail.

Festuca duriuscula—Hard fescue.

Poa trivialis—Rough meadow grass.

Agrostis stolonifera—Fiorin.

Festuca ovina—Sheep's fescue.

Avena flavescens—Golden oat grass.

In much smaller proportion he would use permanent red clover, or cow grass, alsike and white clover. He would always put in some yarrow. "All rye grasses, or nearly all, die out after once seeding." He omits sweet vernal altogether.

What is best for each of the various portions of the United States probably no one yet knows. We are trying to find out. For the moister portions of the North the above-named list seems to be a good one, with probably, this modification: Place the *poa pratensis*, June grass or Kentucky blue grass, in place of *poa trivialis*, and *agrostis vulgaris*, red top, in place of *agrostis stolonifera*, and for the drier portions of our country, to the coarser grasses add *arrhenatherum vulgare*, tall oat grass.

We will not puzzle our farmers with numerous long lists of mixtures at a mere guess, but give a few of the best and advise experimenting each for himself. A great point is gained when a farmer ventures to deviate from the usages of his father or neighbors. Many have fallen into certain practices, often without very substantial reasons. In future articles we shall speak of the peculiarities of some of the grasses which seem most promising to us.—Prof. W. J. Beal of Michigan Agricultural College.

THE MILK SUPPLY OF CITIES.

The milk question, so far as it concerns the supply of large cities and towns, and the relation of consumers and producers, has been lately receiving much attention in different parts of the country. None too much, however, for the whole business, certainly in the Atlantic States is demoralized and unsatisfactory to the producers.

The production of milk for sale has largely increased of late, until there is at all times a full supply, and frequently a surplus, within reach of all the large cities. Taking advantage of this fact, knowing the perishable nature of the product and the inability of most farmers who have begun to make milk largely to take care of it at home, or manufacture it profitably, the dealers have steadily crowded down the price. The receipts of the milk producer have thus decreased, while the consumers have derived no benefit, the retail selling price being held as high as ever. The margin for the middlemen has been gradually widened, without any material improvement in the milk service or other good reason. The retail peddlers do not receive much beyond a

living, and the gain has been mainly to the wholesale dealers and large operators. As a rule, the producer now receives less than one-half, and in many cases only one-third, of what the consumer pays for the milk.

Producers have for a long time realized that they were receiving less than their fair share of the gross proceeds of the milk, and have known that oftentimes they actually produced it and sold it at a loss. Yet, once settled in this line of farming, an entire change can only be made at a sacrifice, and many have consequently submitted to frequent and even constant losses. Matters have gone from bad to worse, until it has come to be an accepted fact that milk producers must and will accept whatever the dealers choose to offer, regardless both of the original cost and of the final selling price. The large jobbers have boasted of their power and have combined to make it more effective.

Naturally, reaction has at last taken place. Milk producers have been driven to co-operate to protect their interests, and organizations to this end are forming in many places. A determined revolt against the encroachments of "the trade" was made in Orange county, N. Y., a year ago. The results were such as to show, "by the book," that the income of the dairy farmers of that county has been at least \$800 per day greater than it would otherwise have been, for a whole year. This amounts to a large sum. It has given impetus to similar movements elsewhere, and there is at present special activity in the New England Milk Producers' Association, which includes the territory supplying Boston and vicinity, the Housatonic Valley Association, of Connecticut, and similar organizations on all the railway lines delivering milk for New York and Jersey City.

These organizations take, first, the crude form of combinations of producers to fix and maintain the price for milk on the farms of a given district. This supposes all pure, honest country milk to be equal in value, or, at least, to have a minimum value. None of the movements thus far have attempted to establish a price to the farmer of more than three and a-half cents a quart average for the year. The "farmer's price" has been fixed at less than this in most cases. Certainly this is reasonable, and any one candidly examining this subject must agree that, while milk costs the city consumer six cents or more per quart, the producer is fairly entitled to four cents, and ought to be encouraged and helped in any proper action necessary to obtain it.

When once well organized and so managed as to feel their power and make it felt, the associations of milk producers will find a wide field of usefulness before them, and, if guided aright, they will win the hearty co-operation of all consumers. The interests of these two classes are identical. The nature of this all-important article of food is such that there are peculiarly strong reasons why the producers and consumers of milk should earnestly strive to bring themselves nearer together. There is ample opportunity for this. As at present conducted, the business of city milk supply is unsystematic, wasteful and absurd. It supports at least twice as many middlemen of different grade as are necessary, and there is no question of the possibility of

reducing the cost of transporting the milk from the farm and delivering it to the city family at least one-half. Properly organized on a scale commensurate with the extent and importance of traffic, the total cost between producer and consumer for any of our Eastern cities can be reduced to two cents per quart. This ought to be insuring an average cost to the one of six cents and an average receipt of four by the other. To this end the milk producers' associations should, in time, apply themselves, and they naturally will. Already, indeed, the members of the Farmers' Milk Company, of Orange county, N. Y. (which, as a corporation with fair capital, owned by dairymen, has taken the place of the Eric Milk Producers' Association), are arranging to sell their own milk in New York City after the 1st of April.

Nor is this all. It will become the duty of these milk associations to arrange for lessening the cost and improving the facilities of milk transportation by rail, as well as to systematize city delivery; to classify or grade the merchantable article of milk and raise the commercial minimum standard; to aid in preventing adulteration and fraud, and to institute some means of sanitary inspection of the farms and stables where the milk is made.

It is plain, therefore, that this movement, becoming so general in the milk-producing districts, cannot be overrated in importance. These new organizations should commend themselves to every producer and every consumer of milk, and certainly should embrace both in their active membership, for upon them devolve the duty of solving this whole great problem of the reformation, so much needed, in the milk supply of our large towns and cities.

SOURCES OF TRICHINÆ.

An extract from Dr. Detmer's report to the Government upon trichinæ in hogs as taken from Coleman's *Rural World*, says:

"That I am correct concerning the principal resources of trichinæ in hogs to the bad habit of our farmers here of leaving hogs that die of swine plague and of other diseases, too, unburied, will appear from the following: As is well known, we had very little swine plague and very few losses from that disease in the West in 1883. The winter of 1882-83 was a severe one, the spring of 1883 was wet, pouring rains were frequent, and the summer following rather backward and cool, all conditions unfavorable to the preservation and development of the swine plague germs (*dipliococcus suis*). In August, when I announced my trichinæ investigation, I examined mostly last year's hogs, over a year old, and found 24 per cent. trichinous; in September some younger hogs, or hogs less than a year old, commenced to come in, and I found only 2.43 per cent. affected, in October, when most of the hogs examined were less than a year old, the percentage came down to 1.62 per cent. and in November, when nearly all the hogs examined were young animals the very low percentage of .73 was reached. Besides that in some of the hogs found to be trichinous the trichinæ were already calcified, or in a state of calcification, which shows that the same cannot have recently invaded the animal organism and were probably over a year

old. Further, as said above, hogs from counties never seriously invaded by the swine plague were almost invariably found free from trichina. In one carload of hogs from Dakota one animal was found to be trichinosis, but the trichine were old, showed incipient calcification, and it is tolerably safe to say that hog, very likely, not a native of Dakota, but born and invaded by trichina in Illinois, Iowa, or some other State, from which many people emigrated to Dakota.

"Another proof that a prevalence of swine plague, or numerous deaths caused by that disease, and that consumption of the dead hogs, constitutes the principal source of trichinosis in swine, is furnished by the following facts: A few years ago, when swine plague was extensively prevailing in the West, and when the losses caused by that disease were by far greater than they are at present or have been during the last two years, the percentage of trichinosis hogs reported by other investigators was much higher than that found by me in the fall of 1883, from August till date, notwithstanding that my examinations have been made in a most conscientious manner, and with a microscope that has a large mechanical stage, which permits a systematic examination of every portion of the slide. If numerous deaths of hogs by swine plague or from other causes, and a subsequent consumption of dead hogs by the living, does not constitute the most fruitful source of trichinosis hogs coincident with the gradual disappearance or decreased prevalence of swine plague I can not find a rational explanation.

THE INDUSTRIOUS HENS.

"If I owned all the hens in this country," said the marketman, as he counted out a dozen eggs and put them in a customer's basket, "and had a place to pasture them in, all I would ask would be ten years in business, and I'd make it very warm for Vanderbilt."

"How's that?" asked the reporter.

"How's that? Why, easy, that's how. Maybe you don't know, young man, that 25,000,000 cackles, announcing the birth of the same number of eggs, kept the farmer boys busy every day last year gathering in the efforts of 25,000,000 hens? But they did. Well, those efforts for 365 days resulted in 9,600,000,000 separate and distinct eggs, or 800,000,000 dozen, as near as I can calculate. Now, it took just 750,000,000 dozen of those eggs to supply the demand for Tom and Jerry's puddings, hard and soft boiled eggs, egg nog, and ham and eggs in this country last year, and eggs was eggs at that. I figure that 30 cents a dozen, for 1883, was about the average price. Thirty cents a dozen for 750,000,000 dozen climbs plumb up to the comfortable little purse of \$225,000,000. There's nothing mean about me, and if I had the handling of those offerings of the nation's hens, I'd be satisfied with a profit of two cents on a dozen.

"What would be my little divvy? Well, if I haven't forgot what old Daboll drummed into me, I make it out that when the old year died I would lug home something like \$15,000,000, clean and slick, ahead of the game. Ten years of that, and I think I could sit down with the boys and stay with as heavy a jack pot as any of 'em."

"What would become of the other fifty million dozen?" asked the reporter.

"There you are again!" replied the market man. "If I owned all the hens, there's another little item that would help to keep me from worrying about the punctuality of the rect and infallibility of the gas meter. Last year must have been a good one for people visiting in the country, for folks broiled, fricasseed, and roasted something like six hundred million chickens, young and old. That used up the little balance of fifty million dozen eggs. That fifty million dozen of eggs were turned into chickens that gobbled up \$300,000,000 of the hard-earned coin of this realm, ciphering the thing down close at fifty cents a chicken. I don't deal in poultry, but from the size of the diamond pins of the ones that do I don't hesitate a minute to say that there can't be less than five cents profit on every chicken they sell. Old Daboll comes up again and lays it down for a nickel-plated fact that if I owned all the hens in this country I would have to make two trips home from the shop at the end of the year, for here I would have \$15,000,000 more piled in the till to be carried away and stuffed in the stocking, and \$15,000,000 is plenty for one man to carry at one time.

"So you see what a nice nest egg I'd have at the end of ten years. And you'd hardly believe that New York City would chip in about one-thirtieth of the whole pot every year, would you? But she would. Last year it took 25,000,000 dozen of eggs to satisfy her, and she paid \$9,000,000 to get them. Now, New York State only keeps hens enough to lay about 8,000,000 dozen, and so, of course, we have to go knocking around all over the country and part of Canada to keep up with the cry for eggs. It would take all the eggs that New York, New Jersey, Pennsylvania and Massachusetts hens are responsible for to supply this city with all the eggs it wants. The 25,000,000 dozen eggs used here last year, if laid in a single line, one after another, without a hair's space between them, would reach from Boston to San Francisco. I tell you there's a big thing waiting for some one who can get a corner on hens."—*New York Sun.*

INDIVIDUAL OWNERSHIP OF FORESTS.

The discussion over the destruction of our forests was never so active as it is now. It is difficult to find an exchange that has not an original or copied article on this subject, some papers running on it exclusively, yet from the very nature of things it is extremely doubtful if all this does any good. If the several States owned the forests within their borders all this would be well enough, and it would be an easy matter to resort to protective legislation. Unfortunately, however, most of these lands are now under private ownership, and a very different turn is given to the question. The time is not yet when the owners of the soil will willingly submit to legislative dictation in the disposal or management of their property. It would be as logical to try to make farmers plant certain crops and prevent them from planting others, to prevent them from quarrying stones or mining coal on their property, as to attempt to prevent them from

clearing such of their lands as may be covered with timber. Here is the source of all the trouble and this it is that renders discussion next to useless. The men who own forest lands understand as well as any one the consequences that must result from cutting them away. But when did that knowledge deter a man from laying low his trees, and realizing on his lumber? Suppose you prove to a man that in the heaviest timbered counties in this State pine lumber once sold at a cent per foot and this it is now brought into those counties from abroad and sold at five cents per foot, what do the men care who owned it, cut it down and made fortunes out of it? That is all they cared for, and it is all most owners of timber cared for. Until that selfish sentiment can be legislated out of human nature, the discussion about forest preservation won't amount to much. If a law can be found or enacted that will enable the State to control men's actions in the disposal of their wooded lands, then something effective may be looked for, and not until then. Men are far more likely to consult their own pecuniary welfare than that of the nation, and this will down our forests.—*New Era.*

THE SUMMONS OF THE RAIN.

When the rain comes down as it did on March 9, and had been doing for many days, there are questions that should come with the splash of the drops, to farmer and citizen alike: "Where is it all going—where are the storehouses to keep it for the summer supply?" Here is a plentiful down-pour of the fertilizing moisture which the whole Atlantic slope will need to slake its thirst next summer, but it is nearly all swimming away to the sea. The woodlands are few and far between; the hillsides are mostly bare, and the absorbent forest soils, that once held the rain to filter it slowly down to the deep springs are displaced by compact lands that are but so many steep water sheds to hasten the moisture to waste. These are questions to which but scant consideration is given. Of course we cannot bring back the primeval forests if we would; but something may be done. Wood tracts can be restored on a limited scale—groves can be planted, or reserved at least to the limits prescribed by Penn for his Sylvania plantations. Retaining reservoirs can be constructed for other purposes than canal navigation, and upon a much more comprehensive plan. But the trees should be placed and replaced in patches and groves in any event, wherever it is practicable. The open, spongy top soil of the woodland, and the rock crevices below, are the natural storehouses of rain, which, under existing conditions of denuded land, now falls only to run off to the great streams, and thence to the sea. It is this quick shedding of the copious downpours of the early spring from the bare hillsides, carrying the waters off in rushing torrents, that largely aggravates, if it is not mainly accountable for, the disastrous "freshets" and floods which are coming with more and more frequency and with more and more disastrous effect. This and the blocking of the natural channels of the streams by various constructions are certainly accountable in considerable degree.

It is getting to be common, too, that summer drouths follow hard upon the spring

deluges. This argues a bad balance of the results that come from man's operations on and alterations of the face of the country—to whatever degree those are his work, or within the reach of it. In some stretches of New England country the side hills show only bare rock or blackened stumps standing out against the horizon line; and thence we hear from the leveler country in that vicinity of "baked" and "cracked" fields and "falling springs" summer after summer. These phenomena go in pairs. We can see and hear of the same juxtaposition of the naked facts at the Schulkyll and along the upper reaches of the Delaware every spring and late summer. Still the process of tree slaughter goes on, and only here and there do we find thoughtful people who plant trees or who attempt to replenish their decayed and despoiled woods as help, if not security, for the future.

Trees do something more than we have yet indicated—they supply something beyond the banks of water capital. When in fairly spread "woods," they are equalizers of temperature and moisture, as the sea is. They act in some degree for stretches of inland country, as the ocean does for its adjacent shores. They temper the high heats of summer by most refreshing coolness in their shades; and they moderate the intensity of the cold in the winter. They are barriers to the sweep of the winter winds and to the rough blasts of March, that come along with the vernal equinox in our latitude, and they are beautiful sources of pleasure besides. And what is going to be done about the matter, conceding all these things to be true? Why, in the first place, every landholder who has "woods" or groves of trees should keep them intact, and every one, everywhere, should plant new trees at least to the extent that they cut existing trees down. State customs encourage tree planting in the West by their "Arbor Days" (an admirable institution), and the United States Government is encouraging it by laws for its own lands. Forestry associations also are coming in to help. The question is not so much what are you going to do about it as it is to get the people of the agricultural districts of the country wide awake to more thought on the subject. Earnest and intelligent thought will lead straight to the only action that remains within practicable reach—every one to do his share in the effort to preserve the remaining woods on the Atlantic slope from unnecessary damage, and every one to unite in securing State legislation, like that prescribed by Penn., in order that selfish or thoughtless individuals may be kept within fair bounds from such spoliation as is a damage to the body of the State—and this in every State.—*Philadelphia Leiber.*

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular monthly meeting of the Lancaster County Agricultural Society was held Monday afternoon, April 7, in their rooms in the City Hall.

The following members were present: J. C. Linville, Salksbury; Henry M. Engle, Marietta; Dr. J. P. Wickersham, city; Joseph F. Witmer, Paradise; Johnson Miller, Warwick; Martin D. Kendig, Cress-

well; S. Lem Fry, J. K. Buckwalter, Salsbury; J. M. Johnston, J. B. Hipple and F. R. DeBorner, city; A. C. Baldwin, Salsbury; Levi S. Reist, Mannheim; C. L. Hunsicker, Mannheim; Dr. W. H. Bollinger, city; Peter S. Reist, LEBIZ; Israel L. Landis, city; Cyrus Neff, Manor; Ephraim S. Hoover, Mannheim; W. H. Brosius, Drummer; S. P. Eby, city; Mr. Landis.

In the absence of the President, Vice President, Henry M. Engle was called to the chair.

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

On motion, Mr. J. K. Buckwalter was elected to membership.

The committee appointed to formulate a plan to award premiums to boys who succeed in growing the best crops of corn from a given tract of ground reported progress.

A Farmer's Institute.

Dr. D. P. Wickersham, as chairman of the committee to consider the advisability of holding a Farmer's Institute, made the following report:

The committee appointed to consider the advisability of holding a Farmer's Institute respectfully report:

1. That such an Institute should be held in the city of Lancaster during the latter part of May or early in June and continue in session not less than two days.

2. That the exercises should consist of essays and discussions by practical farmers and of instruction and lectures by leading agriculturists from abroad.

3. That the subjects to be considered should be such as relate exclusively to the different branches of practical farming.

4. That an invitation to be present should be extended to Governor Pattison, Dr. Loring, United States Commissioner of Agriculture, Thomas J. Edge, Secretary of the State Board of Agriculture; President Atherton, of the State Agricultural College; Rev. Dr. Calder, lecturer of the State Grange, and other leading agriculturists from our own and other States.

5. That an executive committee of five be appointed to arrange the time and place for the meeting of the Institute, to advertise the same, to invite speakers and prepare the program and to conduct the proceedings.

Johnson Miller advocated the advisability of holding such a farmers' institute. He hoped a committee would be appointed to carry the project to a successful conclusion.

Dr. Wickersham had talked with a good many farmers, and he found they were favorably inclined toward such an institute. He believed if the best men in the State, the leading agriculturists, were to be present at such a convention, it would draw together a large number of the best farmers in the county. But it required an active committee to carry the matter forward. Can such a committee be got together? Can the small amount of money required to pay the expenses be raised? These are the important points to be decided.

M. D. Kendig thought highly of the plan. There was no doubt about its propriety, and the only thing was to enlist the willing aid of the farmers all over the county. It will require one or more active delegates in every district to work up the matter. If this is done its success is certainly assured.

Henry M. Engle believed his township should show a handsome turnout of farmers.

Joseph F. Witmer could not see why farmers can not take as much interest in their own business as politicians do in theirs. One trouble is, that most of our farmers, after leaving church on Sunday, go about and visit each other, and discuss current farm and agricultural topics, and in this way become indifferent to meetings of a purely agricultural character in the city.

Dr. Wickersham believed both Governor Pattison and Dr. Loring would be here. Others of equal prominence and reputation can be secured, and on the whole a most desirable array of talent could be brought here. He was assured that the papers of

the city would lend the scheme their most hearty endorsement, and do all in their power to further the plan.

Johnson Miller guaranteed at least twenty five progressive farmers would be present from Warwick township. Other members gave similar guarantees.

Joseph F. Witmer was for going ahead. There was considerable money in the society treasury and the pecuniary risk would be comparatively nothing. Let the committee be appointed and the society go ahead with the matter.

C. L. Hunsicker also advocated the plan. It was in the interests of agriculture and he believed it would do good. Our numbers are small, but the society, in spite of the paucity of its numbers, has done much good.

Mr. Buckwalter believed that if, for instance, an able lecturer on the horse was announced as one of the speakers at the institute, he alone would draw a large audience.

On motion of Mr. Linville the present committee was continued to carry the scheme of a Farmers' Institute forward.

Premiums for Corn Growing.

The committee on formulating a plan for awarding premiums to boys for corn growing submitted the following:

The committee to arrange a list of premiums to boys for the best crop of corn on one-eighth of an acre be leave to report the following: For the best lot of corn, \$15; for the second lot of corn, \$10; for the third lot of corn, \$5; for the fourth lot of corn, \$3.

The length of the plot must not be more than four times its width and the measurement outside of the rows must not exceed one-half the distance between the rows.

The contestants, who must not be over fifteen years of age, must enter their names with the secretary on or before the first of June.

The reports of results must give method of planting, variety of seed and when planted and harvested, and mode of culture, and the fertilizer used.

The corn to be shelled and weighed, and the report to be accompanied by affidavits of vouchers from the growers, not later than the 15th of November.

Crop Reports.

Henry M. Engle reported that it was a pleasure to him to say that not all the peaches were killed in his locality. On the tops of the trees there are still some un injured buds.

Johnson Miller reported rye frozen out very badly. Grass is also hurt in some places. The peaches are mostly destroyed. Wheat looks well.

Farmers' Co-operative Associations.

J. C. Linville had no practical experience in co-operative associations, but of the advantages of wholesale purchasing there can be no doubt. We can buy lumber, clover seed and fertilizers cheaper by the car load than at retail. It is advantageous to work together. All classes have such associations except the farmers. What is to be guarded against are the politicians. They try to benefit themselves and not the farmers.

Dr. J. P. Wickersham never investigated this question as applied to farmers. He could easily see, however, how the interests of agriculture could be advanced thereby. Purchases can be made more cheaply in this way than where every man goes on his own account. Sales can also be more cheaply made where there is union. Co-operation is a medium where nearly capital and labor are likely to be brought more nearly together than in any other way.

H. M. Engle was a believer in co-operation there are, however, two sides to all questions. The Grange movement has done much to educate the farmers. It has been a source of profit to those belonging to it by cheapening all kinds of supplies needed by farmers.

Several bills were presented and ordered paid. Dr. Wickersham related some interesting facts concerning agriculture in Europe, in many parts of which grain is still cut with sickles by women, and is

carried to the barns on the heads of the gleaners. They are a thousand years behind our own country in this matter.

Joseph T. Witmer spoke a good word for the Thomas Smithy harrow. He had no personal interest in the implement but he spoke because it gave him better results than any other he ever used. For corn and potatoes it is most excellent.

Question for Discussion.

Do the farmers of Lancaster make good butter? If not, why not?

On motion, the society adjourned.

POULTRY ASSOCIATION.

The Lancaster County Poultry Society met in the office of J. B. Long, Rhoad's building, West King street, Monday morning, April 7th. The following members were in attendance: Jacob B. Long, Harry A. Schroyer, George H. Rathfon, Martin Rudy, Frank Humphreville, Charles Lippold, F. R. Diffeenderfer and J. M. Johnston, city, M. L. Kreider, Mount Joy.

The meeting was called to order by Harry A. Schroyer. The secretary, Mr. J. B. Lichy, being absent the reading of the minutes was dispensed with. This being the time for the annual election of officers for the ensuing year, the following were elected by acclamation: President, Harry A. Schroyer; Vice Presidents, M. L. Kreider, John Seidmridge; Recording Secretary, J. B. Lichy; Corresponding Secretary, Martin Rudy.

For Treasurer, George F. Rathfon and John E. Schamm were placed in nomination, and Mr. Schamm having received the highest number of votes was declared elected.

The following names were placed in nomination for the Executive Committee: Peter Bruner, T. Frank Evans, Wm. Shoemaker, Charles Lippold, Samuel G. Engle, Jos. H. Trissler and Frank H. Diffeenderfer. The first five having received the highest number of votes were elected to serve on the committee in connection with the president, the two secretaries and treasurer.

A committee of two from the city band waited on the society with a view to be released from the contract which binds the band to the agreement they entered into of renting the society's hall for a fair, for two weeks, commencing April 26. The society would not release the band from their contract.

On application of Miss Annie E. Humm the hall was rented to a society of the blind for a fair, \$50 and payment of the gas bill during the time of the fair. The fair will be held the first two weeks of June.

There being no further business society adjourned.

FULTON FARMERS' CLUB.

Fulton Farmers' Club met at the residence of Solomon Gregg, April 5th. The members were all present, as were George Jenkins and wife, Jacob Grossman and wife, and several others as visitors, making quite a large company.

The minutes of last meeting were read and approved.

Sol. Gregg exhibited two varieties of apples, Dominie and Smith Cider.

E. H. Haines has a small clearing which is planted in wheat and of which the sorrel has completely taken possession. He asked the club the best way to eradicate it.

Lindley King, recommended a heavy application of lime and then get it into grass.

Montillio Brown recommended the use of plenty of lime and barnyard manure; plant in buckwheat and follow with corn.

Sol. Gregg has had considerable experience with sorrel and recommends strong manuring, continuous planting and cultivation.

Marchal Nesbit said he would plant in corn and give thorough cultivation.

E. H. Haines said he has noticed that farmers are planting locust trees along the road side. Taking in consideration the inconvenience of farming along side of them and the shading and keeping the

roads from drying, he would ask if it is a good idea. J. Grossman, Lindly King and George Jenkins would not favor the planting of too many trees by the roadside.

Montillio Brown said the trees are good to protect banks along roads, also along pasture lands; spoke of the road law allowing farmers 25 cents each for trees planted by the roadside, as a good one.

Sol. Gregg is not in favor of planting locust trees by the roadside, but in some out of the way place.

Jos. R. Blackburn said the locust trees do better planted by the roadside than in groups, unless cultivated; spoke of trees he had planted by the roadside that are now large, fine trees, while a group planted by a neighbor the same time had never amounted to anything; he thinks they are not injurious to roads, but make pleasant shade, add to the appearance of the farm, and make valuable lumber for the farmer.

Dinner being announced, the club adjourned and proceeded to demolish with neatness and dispatch the good things set before them.

Owing to the roughness of the weather the usual inspection of the farm, etc., was confined to the barn and comfortable parlor of the host. After some very good music by the young ladies, the club was called to order and the reading of the minutes of the meeting last held here followed, and criticisms on farm management were called for. They were all of a complimentary character, nothing new being noticed except a wood house.

An article was read by Mrs. Anna Gregg from the *Farm Journal* entitled, "Seed Time and Harvest."

"The old man in the stylish church," was read by Miss Julia Brown.

E. H. Haines said the above reminded him of an experience he, with two of his neighbors, had attending church in Philadelphia.

Miss Hattie Hess read an amusing essay, which appeared to be an analysis of the old nursery rhyme of "Old Mother Hubbard."

"Nutriment in hay, corn and oats," was read by Mrs. Anna Gregg.

E. H. Haines read an editorial from the *New York Tribune*, commenting on the report of the Senate Committee of Adulteration of Food, relating to bogus butter.

Miss Hattie Hess read from *Farm Journal* an article on "Farm Management."

The committee appointed to draft resolutions of respect on the death of our late member, Josiah Brown, report the following:

WHEREAS, The Fulton Farmers' Club has, by the death of Josiah Brown, lost one of its oldest and most valuable members, one who has long been recognized as an active and zealous worker in the cause of agriculture, therefore be it

Resolved, That by the death of our friend the club and community have lost a highly valued member, and one whose walk in life, both in public and private, entitle his memory to be cherished with the deepest respect and his example to be commended to the members and friends that he leaves behind.

Resolved, That as a mark of respect to the memory of our departed friend, the foregoing be entered upon the minutes and a copy thereof be furnished to the estimable widow and daughter of the deceased, with whom we sympathize in their loss.

On motion the report was accepted.

On motion of E. H. Haines, Marshal Nesbit and family were elected members of the club.

"Should the markets be free for the sale of all brands of butter, bogus and genuine" was the question adopted for discussion at the next meeting.

After listening to some very good music the club adjourned to meet at Wm. King's, May 3, 1884.

LINNEAN SOCIETY.

The Linnean Society met stately in its rooms in the Y. M. C. A. building on Saturday afternoon, March 29, with President J. P. Wickersham in the chair. The minutes of the previous meeting were read and approved, and dues were collected.

Donations to the Museum.

A very fine specimen of the "Whip-tail," from Florida, is donated by Mr. Benjamin Snably, of that

State, who was recently here on a visit. This is the *Thelyphonus excubitor*, of Gerard; but, according to Mr. Snably's representations, it is locally known in Florida as the "Grampus" and "Mule-killer"—one individual at least alleging that its bite caused the death of one of his mules. There is no knowing what the effect of its bite might be under certain adverse circumstances, but ordinarily we do not think it would differ much from the bite of any other animal belonging to its family or group. Scientifically classified, it is one of the Perilipali, a group in the family Tarantulidae, among the Pulmonaria Arachnidae, which includes the Octopod animals—such as spiders and their cognates. Some years ago a specimen of this animal was sent to us from New Mexico by Lieutenant Frazer, of the United States army, who stated that the people there called it "Vinagria," or "Vinegar-bug." More in reference to this animal will be found in the April number of the LANCASTER FARMER.

A bottle containing 13 specimens of Lepidopterous and coleopterous larvae, donated by Mr. F. Beates, of Willow Street, Lancaster county. Mr. B. collected this larvae the first week in February, crawling about on the snow, rather an unusual phenomenon in a month so cold as February was this year. They belong to the Noctuidae and Lampyridae. See LANCASTER FARMER for April, 1884.

A specimen of "lampry eel," donated by Mr. J. M. Westheffer. It was found among the fishes in the Northern Fish Market. This is probably a young specimen of *peromyzon nigricans*, and is parasitic on fishes.

A specimen of the larva of *Spilosoema*, Isabella, and a crouse flower, donated by S. M. Sener. He collected both specimens on the 25th of February, during a temporary elevation of the mercury, which fell to the freezing point the day following.

Dr. S. S. Rathvon deposited two specimens of perforated objects, illustrative of his article on "Animal Mechanism."

Mr. Geo. Flick, taxidermist, city, donated a very fine stuffed specimen of a pigeon, of the fancy breed known as Jacobins.

Donations to Library

To the library were added thirteen catalogues of botanical works, and ten catalogues of plants and seeds, from various parties, donated by S. M. Sener; *Philadelphia Times*, March 13, 1884; *Mobile Daily Register*, 16 pp; *Sacramento weekly Union*, *National Tribune*, *Lancaster Farmer* for February, March, 1884, catalogues of Dr. Leconte's library of entomological works, Lippincott's "Monthly Bulletin" Dulan's catalogue of botanical works *Book Buyer* for March, 1884, catalogue of rare and curious books from H. Sotheman, London, N. W., circulars 3 and 4, also pamphlet on "Education in Italy," and the "Bafalua Prize," from Department Interior, U. S. A., prospectus of a cyclopaedia of political science by J. Lalor, copy of the American catalogue of duplicate books of Mercantile Library, Astor Place, N. Y., catalogue of second hand books, W. Mull, N. O.; circulars from J. B. Pratt in reference to genealogy of Pratt family from 1663, catalogue of historical books from McDonough, Albany, N. Y.; American College Directory, Evans & Co., St. Louis; proceedings of Academy of Natural Sciences, Philadelphia, from June to October 1883, part 2; proceedings of American Philosophical Society, from April 1883 to January 1884, No. 114; Patent Office Gazette for months of February and March, 1884; volumes A; C; A. Atlas; D. 3, vol. 11; G; 7; and A. A. (5 volumes in all) of Second Geological Survey of Pennsylvania, from Department of State.

Letters from Onelia Historical Society, Utica, N. Y., asking for exchange of proceedings were placed on file, also copy of fifth annual address of same. A vote of thanks was on motion tendered the honors to the museum and library for donations.

Dr. S. S. Rathvon read an original paper on "Animal Mechanism," illustrated by specimens, also an article on the Florida Whip Tail.

Prof. Theodore Appel and Miss E. V. Baker were then elected associate members, and C. W. Doring, Utica, N. Y., a correspondent.

The secretary said that since last meetings shares of stock had been properly executed and delivered according to resolutions, also that he had sent a package of *Papers* containing our proceedings to the Indiana Historical Society, Utica, New York.

A committee of three, consisting of the President, S. M. Sener and Prof. J. S. Stahr, was then on motion appointed to draft a new Constitution and By-Laws. In accordance with the suggestions of the committee appointed to examine into the same, whose report had been previously handed in and accepted. The new committee are requested to act by next meeting and report.

Under scientific gossip it was remarked that there was 500,000 distinct forms of insects, and that the animal kingdom is now estimated to embrace about 600,000 species.

The society adjourned to meet on Saturday afternoon, April 26, 1884, at 2 1/2 P.M. in the museum rooms.

AGRICULTURE.

Onion Culture.

Dr. E. Lewis Sturtevant, Director of New York Agricultural Experiment Station, in a recent bulletin says:

Our onion trials of the last season were with forty-four named varieties, which were planted in two ten feet long and eleven and one-half inches apart, the seeds being covered one-half inch deep. In order to ascertain the percentage of seed which vegetated, we carefully counted in 100 seeds of each variety, separating these by stakes from the remainder of the planting. Three rows of each variety were sown in order to note the difference upon yield of onions of planting. In the first row the plants are thinned to three inches apart; in the second to two inches and in the third to one inch apart.

The plantings were upon April 23, 24 and 25. The trial for vegetation varied from sixteen days for the Philadelphia White, to thirty-one days for the rown Tenerife, the majority of the varieties vegetating in from twenty-one to twenty-four days. The percentage of plants which vegetated varied from 84 per cent. for the Yellow Cracker, the average percentage being fifty nine per cent. The earliest variety to mature its bulb was the Extra Early Red,

116 days from planting; the latest ten varieties in 135 days. In nearly every case the yield was smallest in the first row, where the spaces were three inches, and largest in the third row, where the spaces were six inches, but in no case was the increased yield of the second and third rows in proportion to the increased number of plants. As a rule, the largest bulbs were in the first row. There seems to be some foundation for the opinion held by some onion growers that the bulbs develop better, offering fewer scabs, where they are so close in the row as to crowd each other.

The following experiment with onions is quite suggestive. The soil was thoroughly pulverized over a nail plate of ground, and an adjoining plate of equal size the ground was packed as hard as possible by repeatedly pounding it with a heavy maul. The surface of both plates was then covered with finely pulvurized soil to the depth of half an inch, and June 1 three rows on each plate were planted with seed of the Large Red Wethersfield onion. Late planting as disadvantageous to the yield, but the three rows in the compacted soil yielded but three pounds, three times. The percentage of vegetation in the two soils was noticeably different, although the vegetation was prompter on the compacted soil.

Potato Culture.

There is scarcely any crop that has induced more experimenting and has caused more discussion than the growing of potatoes. On farms adjoining one another there is all possible difference in its cultivation. This is more in the seed planted and the manner of planting than in the preparation of the ground and cultivation, though in the results there

is next to no difference. Some farmers insist that quite small whole potatoes are the best for planting; some cut off and throw away the seed end of the small potatoes; others cut medium sized potatoes in two or three pieces; others plant pieces with a single eye, and so on. Some plant the whole large potatoes in holes three feet apart; some the very small ones in drills. When the harvesting comes each will obtain about the same quantity of potatoes and about the same size. We think it probable that if the early part of the season is very dry that the large seed is the best, owing to the substance it possesses to sustain the young growth, otherwise the small seed; or the pieces of medium potato in size, is to be preferred. The saying, too, in the small seed (the latter being unfit for market) will be considerable. A good soil, in ground not subject to standing water or usually very moist, is the best for the crop. Barnyard manure spread over the ground and raked in every row and not plowed too deep, is best. Rows or drills, we think, are to be preferred, and they should be wide enough apart to admit the plow after the vines have become too large for the cultivator. All seed should be spread upon the barn floor for two or three weeks before planting, to harden off the eyes to get a little start, which will reduce about that time in advancing the maturity of the crop.

Should the season be favorable the potato crop at this time is as certain in affording a satisfactory result as any other crop upon the farm, and in some respects it is the most profitable.—*Vermont Telegraph*.

The Kitchen Garden—Hot Beds.

We know it is too soon to say much about gardening or even to go upon the ground; but we also know that some kitchens have no garden in particular, and many have no hot-bed or cold-frame arrangements in what garden they have.

To all such we say begin now to make arrangements for a spring garden; make up your minds what you are going to raise and where the seeds are, and if they are such as will be sure to grow right up when the time comes. Find some warm, sheltered spot secure from the encroachment of stock and poultry and make a bed, with boards around it, and procure some sash and glass to keep off cold winds and admit warm sunshine, and here sow the seeds of early vegetables as soon as the weather is fit to turn them to the ground. March will soon reveal the temper of Spring and before the end of the month some seeds may be sown for early garden vegetables. There is to be some compost made for hot beds and they can be put together before March is out, also lettuce may be sowed, horse radish plants planted out and some other things to save hurry when planting time comes.

April is the time to sow cabbage, celery, lettuce and onion seeds in hot-beds or cold frames, and care must be taken to have good supply of well-rotted and mellowed manures come near the sprouting seeds to consume their tender roots.

"Luck" in sprouting seeds, as well as in growing plants, depends on knowledge of what is going on and deftness in meeting needs. We cannot exact time to plant anything beforehand; for this depends upon the condition of the soil as much as the locality of the ground and state of the weather; but if we don't sow in April we can't reap in May and June.

Neither can we tell farmers what to plant, but anyhow, raise peas, beans, radishes, lettuce, cabbages, celery, beets, parsnips, tomatoes, cucumbers, corn and if we miss any good things here, get and sow it too; for all these things save bread, meat, potatoes and doctors' visits. And though they all contain much the same thing at best, each contains it in different proportions and conditions that make variety—which is a good thing in food either for man or beast. We consider a well kept kitchen garden at least half the living of the farmer's family, and labor and expense there are fully as remunerative as in the field, while by canning, drying, and

economical storage most of these things can be had all the year round.—*Vermont Telegraph*.

A Hillside Orchard.

Mrs. Allen Olney can raise very fine apples on her steep hillside, if it has a good deep soil. A good orchard is a paying investment, and one can well afford to take a deal of extra care and labor to establish the trees on such comparatively worthless land. First, grub out all brush and roots where the young trees are to be planted, taking pains to put the soil in good condition. Plant, if possible, so as to have about each tree a level space not less than two feet in diameter. Cover this with a mulch of coarse manure, leaves or muck, which will keep down weeds and grass and enrich the soil. Seed the whole hillside thickly to blue grass, and remember that soil to grow two crops at the same time must be liberally manured, unless already very rich. The whole surface should be mowed at least twice each summer, to exterminate the bushes and to keep down the grass; the mown grass and weeds make a very good mulch if nothing better can be obtained.

Sheep are capital; they help to kill weeds and bushes, to keep down the grass, making the finest kind of sod. They can be prevented from injuring the trees by putting a guard about each, made of small poles or stakes, or of two large stakes with boards nailed on each side, or by using sawed lath, woven in three tiers of double wires, so as to form a sort of fence. Or they can be kept away by washing the stems of the trees once each month of summer with a wash made very strong of dirty, soft soap and water, and to every eight gallons add one pound of whale-oil soap; thicken this with sheep manure to the consistency of thick whitewash, and apply with a brush or broom as high as the sheep can reach. If the trees are kept well mulched until they attain good size, they will grow as rapidly and healthily as with the best of cultivation, but extra care will be required that mice do not make nests in the mulch, and in deep snows gnaw the trees.—*J. S. Woodard, Niagara county, N. Y.*

Have a Corn-Marker Ready.

This might be taken as a text from which to preach a sermon on having everything ready before the time for using comes. But it is best to be more specific. A corn-marker should be so constructed that the runners will accommodate themselves to uneven ground. A good marker is made in the following manner: In the first place make a "sled," so to speak, of two planks for runners, fastened at the proper distance apart—the width of the corn rows—by two stout strips spiked to the top of the runners. These strips should extend one foot beyond the outside of the two runners. Two other plank runners are provided, and one end of two stout strips are nailed to each of these runners and the opposite ends are fastened, respectively, by bolts to the extended ends of the "sled" pieces. These "wing" runners—one on each side of the central two—are free to move up or down by means of the bolt fastening. In turning around the sled runners may be turned up on the central sled. This latter position may be taken when the marker is drawn to and from the field. A seat can be easily fixed upon the central part of the marker if it is felt desirable. Such a marker is easily and cheaply made and does its work well.—*Phila. Press*.

Harrowing Winter Grain in Spring.

Many farmers have never tried this plan, and they hesitate about it for fear of pulling all the grain out by the roots. If this fear cannot be conquered, try part of your farm field this spring. If you have a smoothing harrow, or one with teeth sloping backward, you can safely repeat the stirring until the grain is a foot high. But go slow at first. Begin as soon as the ground is dry enough in the Spring, and sow your cloverseed on the raw ground after the crust is broken. If you harrow more than once, wait until the last time before scattering your clover seed. You will find that the tilling out of both wheat and rye will more than counterbalance any

dragging out of plants by the root. In some soils the wheat crop has been improved as much as ten bushels to the acre by this process.—*Philadelphia Press.*

How Much Seed Shall I Sow?

That depends on the size and vitality of the seeds, the number of seeds to the bushel, the condition of the land, whether distributed evenly, and the nature of the season which is to follow. No fixed rule will relieve the farmer from thinking for himself and employing all the good judgment at his command. In the opinion of the writer, it would be better, in most cases, if farmers used less seed to the acre and took more pains to get the land in better condition. Suppose we sow twelve quarts of timothy seed and four pounds of red clover to the acre. This will make 18,944,000 seeds of timothy and 6,024,000 seeds of clover, a total of 24,968,000 seeds, or about four seeds to the square inch. Using four seeds in mixtures, as prescribed by some of the English dealers, they often sow from 50,000,000 to 100,000,000 seeds to the acre, or not far from eight to sixteen seeds to each square inch. In either case, there can be room for only a small portion of the plants should all the seeds grow and thrive. Much caution must be used in applying the fixed rules laid down in books, or the fixed rules laid down by men who seldom consult the books.—*Press.*

HORTICULTURE.

Protecting Raspberries.

J. W. F., Williamsport, Pa., desires to know when his raspberry canes, which have been laid down for winter protection, should be uncovered and raised. Certainly not till all danger of freezing weather is over. Cold, piercing winds of March are often more injurious to the canes than the lower temperatures of winter. In other words, it is spring protection, rather than winter protection, which is most beneficial.—*Philadelphia Press.*

Dwarf Celery.

In contrasting the celery of some twenty years ago, tall, coarse and spongy, with the short, crisp, nutty-flavored vegetable of to-day, we must acknowledge that here, at least, some credit is due our modern gardeners. The "Boston Market" has proved with me the best for a combination of good qualities, not the least of which is the cheapness of the crop in comparison with the tall growing varieties. The greatest amount of labor is necessary in hill-up, so that the latter, requiring but little time and attention, can be placed upon the market at a greater profit, or consumed by the grower without the least self-compunction as to extravagance.

As did the mammoth sorts of our fathers, so will the new dwarf kinds continue to improve, until we have a strain of celery needing little care and almost certain to develop favorably under ordinary good cultivation. As to the latter, the main point is plenty of rich, rotted manure, a deep, generous soil and moisture. Fresh manure should always be avoided and deep trenches never tolerated.—*Phila. Press.*

Early Apples.

Although we cannot advise planters to depend upon summer and autumn apples for profit, maturing as they do in the height of the fruit season, still he is a poor farmer who does not provide a few trees of the best varieties for his own table. So far as flavor is concerned, I prefer the Early Joe for summer, and Mother for autumn. The former is a rather small apple, but it has crisp, juicy flesh and delightful flavor. It is a small tree, hence may be grown in a small enclosure. It does not bear as regularly as some, but produces abundantly during its fruiting years.

The Mother is the perfection of apple flavor. It is of fair size, handsome color, spicy, rich and delicious. This, too, a rather small tree of slow growth. The American Summer Pearmain cannot well be excelled for quality, but lately it does not

bear well. The Sweet Bough should be a favorite with those who do not admire the hardness of the Red Astrachan and Early Harvest. For a small list of early apples the following will be found satisfactory in most localities: Early Strawberry, Benoit, Summer Rose, Graevenstein (although a poor bearer with some), Jefferson, Late Strawberry, Maiden's Blush (mostly rather tart), Porter and Primrose.—*Phila. Press.*

Early Pears.

At the head of this list stands the Doyenne d'Été, a rather small, but handsome fruit, of best quality when properly ripened and succeeding almost everywhere. Although doubtful in many localities, the Giffard is one of the very best early varieties where it will succeed. Its fine vinous flavor and delicious melting flesh is of the highest order, but the skin frequently cracks. Notwithstanding its small size and rather unpromising exterior the Bloodgood still ranks among our most popular early kinds. It abounds in a highly perfumed juice and bears abundantly. Another little pear ripening in August is the Dearborn's Seedling, and like the above, still popular and deserving a place in every collection. The Madeleine continues to hold its position as the most desirable very early variety, ripening in the Middle States about the middle of July.

The Oebands Summer is universally admired wherever known for its beautiful yellow skin and rich, juicy, sugary flesh. It produces fine crops.

The Rostizer bears abundantly, and is of delicious quality, but the skin is far from handsome. The tree is also a straggling grower, but vigorous. Ananas d'Été and Julienne are both desirable pears in special locations, but require high culture to produce fine flavor.

Three Pennsylvania seedlings, Ott, Tyson and Brandywine, are excellent quality as a rule, but we hear an occasional instance of failure, especially in their native State.

Early pears must never be allowed to ripen on the tree. As they approach maturity, which can be detected by their color and their beginning to drop, the fruit should be carefully picked and placed thinly on the floor of a cool apartment. Spread a blanket over them and watch closely for the ripened specimens, as they never keep long in a perfect state. The trouble is, the heart of the fruit generally decays first, and there is nothing to remind us that decomposition is taking place.—*Phila. Press.*

Tomatoes.

The tomato of late years has been universally grown and yet it seems not to be thoroughly understood. We Northern folks seldom have this very wholesome vegetable in any quantity till August. Why not have it in July? Why not in June? Why not to a limited extent have it all the year fresh from the vine? The plant is usually treated as an annual; but who ever saw a tomato vine die the same year it was sown through age, or till the frost came and killed it? Let it be treated as a biennial plant and a great revolution will take place in its culture. The canning factories do not wish seed sown till late in the spring because the crop then comes in, to suit their purpose when the heat of summer is over. But for the table everybody wants them as early as possible, and, therefore, we pay large prices for insipid things brought from the far South, where they need to be picked while green for transportation, for which reason they are comparatively worthless. Good, large tomatoes, fresh from the vine, in the winter and early spring bring readily from ten to twenty-five cents apiece in leading hotels of our great cities and, considering the profusion with which tomatoes grow under glass and the simple culture they require, it is strange that enterprising men do not go into the business of forcing and forwarding this fruit.

I ask what fruit will pay better? It is certainly not the grape; for the foreign grape now grown so plentifully in California has pulled down the price of the house grown article so much that it is not profit-

able to build glass houses any more for a marketable supply of grapes.

To have tomatoes in late June and July they require to be sown the year before in poor soil, and kept through the winter in a moderate heat, sufficient to keep them from freezing, in pots or boxes. Transplanted into small pots in February or March they will then be coming into blossom at the time of planting out, and will mature from four to six weeks earlier than any hot-bed sown plants, no matter how early sown for fruit the present year, for what the tomato wants is age.

Early tomatoes can also be raised by planting cuttings in the fall from good sorts already in bearing, when the quality can easily be judged of. And thus a good sort can be perpetuated. To have them in May and June those bearing in large pots through the winter with ripe fruit and plenty of blossoms on may be turned out of their pots when the frost is over, and thus ripe fruit may be picked by planting in succession, from frost to frost.

A pit sunk in the ground five feet deep in a dry place, of such dimensions as are required and covered with glass, with a small earthen pipe or brick flue running around, will accomplish all that is claimed in the above.—*Thomas Bennett in Phila. Press.*

HOUSEHOLD RECIPES.

SALEM PUDDING.—One cup stout, chopped fine; one cup molasses, one cup milk, one teaspoon soda, three and a half cups flour, two teaspoons cream tartar, one cup raisins, one teaspoon cloves, a little salt. Steam three hours. Wine sauce.

CARRIE'S APPLE BATTER.—Half pint milk, one egg, and flour to make a pretty stiff batter; a little salt. Fill your pudding dish with sliced apples, pour your batter over them, and steam three hours. Sauce.

SUNDERLAND PUDDING, No. 1.—One quart milk, five eggs, six tablespoons flour, a little salt. Bake in cups twenty minutes. Sauce.

SUNDERLAND PUDDING, No. 2.—One pint milk, one pint flour, three eggs, salt.

MRS. H.'S BERRY PUDDING.—Coffee-cup sweet milk, one third cup molasses, one egg, a little salt, a little saleratus, three and a half teaspoons flour. Beat all with a spoon. Flour three pints berries, and stir with a knife. Steam three hours. Sauce.

MADAM E.'S PUDDING SAUCE.—Large coffee cup powdered sugar, quarter pound butter. Beat together very light; then add one egg, but do not beat much after the egg is in. Stir in one glass of wine. Take off the tea-kettle cover, set the same in, and let it melt as thick as cream, stirring it occasionally.

BAKED PLUM PUDDING.—Two quarts milk, ten soft crackers, eight eggs, one pound stoned raisins. Spice to taste. Bake from three to four hours. Sauce.

MRS. C.'S PUMPKIN PIE.—Stew a large sized pumpkin in about one pint of water till dry; stir through a colander; add two quarts milk scalded, six eggs, heaped tablespoon ginger, half as much cinnamon, two coffee cups molasses, two coffee-cups sugar, two teaspoons salt. Bake in a pretty hot oven, one hour at least.

COTTAGE PUDDING.—One pint bowl flour, one teaspoon milk, one egg, half-teaspoon sugar, one teaspoon soda dissolved in the milk, two teaspoons cream tartar rubbed in the flour. Bake twenty minutes or half an hour. Sauce.

COOKIES.—One cup of butter, two cups of sugar, one cup of cold water, half a teaspoonful of saleratus, two eggs, flour enough to roll, and no more.

SOT GINGERBREAD.—One cup of molasses, one cup of sugar, one cup of butter, one cup of butter-milk, one egg, saleratus and cloves. Mix pretty stiff.

CREAM CAKE. One cup of cream, one cup of sugar, two cups of flour, two eggs, teaspoonful of saleratus; flavor with lemon.

DOUGHNUTS.—One cup of melted lard, one pint of milk, one cup of yeast; mix at night, *overnight*; in the morning, when perfectly light, add two cups of brown sugar, two eggs, one teaspoonful of cinnamon, let it rise again, roll it about a quarter of an inch thick, and cut it; boil in very hot fat.

SOFT GINGERBREAD.—Two cups of brown sugar, one cup of sour milk, one cup of molasses, three eggs, three-quarters cup butter, one tablespoonful ginger, one teaspoonful saleratus.

GOLD CAKE.—One cup butter, one cup milk, two cups sugar, three cups flour, yolks of five eggs, one small tea-spoonful soda, two teaspoonfuls cream tartar, flavor with nutmeg or vanilla.

SILVER CAKE.—One half cup butter, one-half cup sugar, one cup milk, two and one-half cups flour, whites of five eggs, one teaspoonful cream tartar, one-half teaspoonful soda.

MRS. R.'S CUP CAKE.—Four cups flour, two cups sugar, one cup butter, one cup milk, four eggs, teaspoon cream tartar, one-third teaspoon soda, one pound currants.

LADY CAKE.—One pound flour, one pound sugar, half pound butter, five eggs, tumbler of milk, tea-spoon soda, juice and grated rind of one lemon, twelve bitter almonds blanched and pounded. Bake thirty in three small sheets.

COCONUT CAKE.—One pound sugar, half pound butter, three-quarters pound flour, six eggs, one coconut grated; beat butter and sugar to a cream, add the yolks well beaten, then the whites, then flour, and last the coconut.

COMPOSITION CAKE.—Two and a quarter pounds of flour, one and three-quarter pounds of sugar, one and a half pounds of butter, three pounds of fruit, six eggs, one pint of milk, one cup of molasses, two glasses of wine, two glasses of brandy, two teaspoonfuls saleratus. Cloves, cinnamon, nutmeg, &c.

SPICE CAKE.—One pound flour, one pound sugar, half pound butter, four eggs, tea-cup cream, tea-spoon soda, tea-spoon cloves, one nutmeg, tea-spoon cinnamon, one pound raisins, one glass wine or brandy.

CREAM CAKE.—One tea-cup cream, two tea-cups sugar, three well-beaten eggs, tea-spoon saleratus, dissolved in wineglass of milk, butter size half an egg, flour to make as thick as pound cake; add raisins and spice to taste; wine and brandy if you like.

GINGERBREAD.—One pound flour, half pound sugar, the yolks of three eggs, half pound of butter; ginger to taste.

A PHILADELPHIA SPONGE CAKE.—Take ten eggs, one pound sugar, half pound flour, and lemon juice or extract to flavor. Beat the whites to a stiff froth, warm and sift the flour; stir the yolks and sugar together, till light; and add the whites and flour, half at a time, alternately. Stir the whole gently, till bubbles rise to the surface. Bake in a moderate oven.

CIDER CAKE.—Two pounds flour, half pound butter, one pound sugar, tea-spoon saleratus, dissolved in one pint of cider; fruit and spice to taste.

SODA CAKE.—Four eggs, one pint of sugar, one tea-cup of butter, one cup of sweet milk, one quart of flour, one teaspoonful of soda, two of cream of tartar.

WHITE CAKE.—Three cups of sifted flour, one and a half cups of sugar, one cup of sweet milk, one egg, two tablespoonfuls of butter, two teaspoonfuls of cream tartar, one teaspoonful of essence of lemon. Beat the butter and sugar to a cream, then add the milk, (in which the soda should be dissolved,) the egg—well beaten—and the essence. Mix with the above, two cups of the flour; and lastly add the third cup, in which the cream tartar has been stirred. Then bake in pans or basins in a quick oven.

WHIGS.—Mix half a pound of sugar with six ounces of butter, two eggs, tea-spoon cinnamon. Stir in two pounds flour, a tea-cup of yeast, milk enough to make a stiff batter; when light, bake in cups.

WEDDING CAKE Pudding.—Two-thirds of a cup of butter, one cup of molasses, two cups of milk, two teaspoonfuls saleratus, four eggs, two pounds of raisins, stoned and chopped, one pound of currants, a quarter of a pound of citron; flour to make a batter as thick as pound cake; salt, and all sorts of spices. Baked or steamed five hours. To be eaten with wine sauce.

INDIAN BAKED PUDDING—ALWAYS GOOD.—One quart milk, four eggs, five large teaspoonfuls of Indian meal, nutmeg and sugar to your taste. Boil the milk, and scald the Indian meal in it; then let it cool before you add the eggs. Bake three-quarters of an hour.

COCONUT PIE.—One good sized coconut peeled and grated, one quart of milk sweetened like custard, a piece of butter the size of a walnut in each pie; four eggs to the quart.

MISSE PIE.—Meat finely chopped, five pounds, good apples seven pounds, sugar three pounds, raisins three pounds, currant jelly one pound, butter four ounces, mace or cinnamon one ounce. When this is prepared, make a crust of two-thirds the usual quantity of lard, and one third of fat salt pork very finely chopped; all of which should be rubbed in the flour and wet with cold water. Bake in a slow oven one hour.

PINEAPPLE PIE.—Pare and grate large pineapples, and to every tea-cupful of grated pineapple add half a tea-cupful of fine white sugar; turn the pineapple and sugar into dishes lined with paste, put a strip of the paste around the dish, cover the pie with paste, wet and press together the edges of the paste, cut a slit in the centre of the cover, through which the vapor may escape. Bake thirty minutes.

FANNIE'S CAKE.—Half a pound of butter, three-quarters of a pound of sugar, one pound of flour, four eggs, one cup of milk, one tea-spoon of soda. Cloves, cinnamon, mace to taste, with or without fruit, as you choose. Bake in a slow oven.

Laura KEESE'S JELLY CAKE.—One tea-cup of sugar, one tea-cup of milk, one tea-spoon of cream of tartar, one pint of flour, two tea-spoons of soda, one egg, one tea-spoonful of melted butter; salt, spice and bake in thin sheets; when baked, spread jelly of any color between the sheets. The receipt makes one cake, in three small divisions.

GERMAN PUFFS.—One pint milk, five eggs, two ounces butter, ten spoonfuls flour. Bake in cups. Same.

Mrs. Mearham's BOILED INDIAN PUDDING.—Two cups Indian meal, two cups flour, one egg, half cup molasses, one tea-spoon soda, two tea-spoon cream tartar. Wet with milk till about as thick as cake. Steam three hours. Never lift the cover while it is cooking, or it will not be light. Same.

POOR MAN'S PUDDING.—Two quarts milk, one cup uncooked rice, half cup sugar, piece of butter size of a walnut, two tea-spoons salt. Spice to taste. Bake three hours, and stir several times during the first hour.

APPLE SAUCE PUDDING.—One cup sazo, in water enough to swell it, i. e., about six cups. Put it on the stove and swell it. If the mean time stew ten or twelve apples, mix with the swelled sazo, and bake three-quarters of an hour. Eat with cream and sazo or wine sazo.

DELIUM CREAM PIE.—Bake your paste, not too rich, in a common pie plate *first*. Boil one pint of milk; when boiling, stir in half cup flour, one cup of sugar, and the yolks of two eggs; beat well together. Cook long enough not to have a raw taste; add juice and grated rind of one lemon and a little salt; beat the whites of the two eggs, with a cup of sugar to a stiff froth; spread over the pie when filled, and brown in the oven.

JANE P.'S LEMON CREAM PIE.—One cup sugar, one cup water, one raw potato grated, juice, grated rind of one lemon; bake in pastry top and bottom. This will make one pie.

CARROT PUDDING.—Half pound grated carrot, half pound grated potato, half pound suet, chopped fine; half pound flour, spices of all sorts, salt, raisins, and citron to taste. Steam five hours. To be eaten with wine sauce.

GREEN CORN PUDDING.—Take half a dozen ears of green sweet corn, (good size,) and with a sharp-pointed knife split each row of kernels, and scrape from the ear. Mix with this pulp, two eggs, well beaten, two table-spoons sugar, one of butter, one salt-spoon of salt, half pint sweet cream (milk may be substituted, with an extra spoonful of butter,) and one dozen crackers, grated or pounded very fine. Mix well together, and bake three hours in a pauding dish—or two in custard cups. Use the corn raw.

AGUSTA'S LEMON PIES.—Juice and grated rind of three lemons, three eggs, and three table-spoons sugar to a lemon. Bake in pull paste.

INK STAINS.—Housewives who are horrified at the sight of ugly ink stains will like to get hold of a receipt for removing them: The moment the ink is spilled take a little milk and saturate the stain; soak it up with a rag, and apply a little more milk, rubbing it well in. In a few minutes the ink will be completely removed.

TO CLEAN DEWANTERS.—Cut some raw potatoes in pieces, put them in the bottle with a little cold water; rinse them, and they will look very clean.

CUT GLASS should be rubbed with a damp sponge dipped in whiting; then brush this off with a clean brush and wash the vessel in cold water.

TO RESTORE CRAPE.—When a drop of water falls on a black crape veil or collar it leaves a conspicuous white mark. To obliterate this spread the crape on a table (laying on it a large book or a paper-weight, to keep it steady), and place underneath the stain a piece of old black silk. With a large camel-hair brush dipped in common ink go over the stain, and then wipe off the ink with a bit of soft silk. It will dry immediately, and the white mark will be seen no more.

AN ANT-TRAP.—Procure a large sponge, wash it well, and press it dry, which will leave the cells quite open; then sprinkle over it some fine white sugar, and place it near where the ants are most troublesome. They will soon collect upon the sponge, and take up their abode in the cells. It is then only necessary to dip the sponge in scalding water, which will wash them out "clean dead" by ten thousands. Put on more sugar, and set the trap for a new haul. This process will soon clear the house of every ant, uncle and progeny.

LIVE STOCK.

Exercise for Stallions.

If a stallion is kept during his time of service shut up in a stable or small yard without proper exercise, his muscles relax, his flesh becomes flabby, and leaves him in a miserable condition to get strong, serviceable colts, however sound he may be. His exercise during service should never be long nor at a fast pace. He ought to be walked or gently trotted every morning at least three to four miles, and an equal distance in the evening. Some horses will require more than this, even twice as much, so judgment must be used in taking them out, as well as in regard to their feed.

Stallions thus kept are more sure foal-getters, and their stock will come healthy and vigorous, provided the mare is equally well conditioned. Of course, no one will breed to an unsound horse, unless he desires to perpetuate heaves, ringbone, spavin and curbs. The careful breeder will avoid a horse whose hoofs are not tough, clear of hair size, and well set up at the heels, and one whose eyes are too prominent or deeply sunken. Every stallion ought to be able to show a certificate of health and soundness from a competent veterinary surgeon before the season begins. — *J. B. Allen in Philadelphia Press.*

The Evil of Check Reins.

There can be no doubt that many more carriage horses become heavier than those that are used for the saddle alone, and the explanation of this prescribes itself at once in the continual and painful pressure on the parts caused by reining in the carriage horse and teaching him to bear himself well. I have seen the larynx and that portion of the wind-pipe immediately beneath it fattened, bent and twisted in a way which could not have been produced by disease, but by mechanical injury alone. The arched neck and elevated head of the carriage horse is an unnatural position, from which the animal is eager to be relieved. Horse-breakers and coachmen should be made to understand, if they persist in its use, that when the horse's head is first confined to the check reins, gentleness, care and caution are necessary. Injury must be done if the throat is violently pressed upon, and especially when it is exposed to additional danger from the impatience of the animal, unused to control and pain. The head of the saddle horse is gradually brought to its place by the hands of its trainer, who skillfully increases or decreases the pressure and plays with the mouth. But the poor carriage horse is confined by the check, which never slackens.

From the constant position of his head, the larynx and the wind-pipe are materially injured, particularly if the head be not naturally well set on, or if the neck be thick or the jaws be narrow.—*P. J. McLauchlin in Colorado Farmer.*

Shropshire Downs.

Combining as they do a heavy carcass of choice mutton with a fleece of good weight, and that fine medium staple that never goes out of favor, the Shropshire Down sheep are rising in popularity with American breeders. They are vigorous, hardy, and stand close herding in large flocks without loss of size or stamina. The ewes are careful mothers and good nurses, yielding plenty of milk; they are prolific, flocks frequently producing 40 per cent. of twins; they are heavy feeders, and have unusually great powers of assimilation of food, therefore they attain great weights at a very early age; yet they kill well, giving a large proportion of choice meat. The quality of their flesh is such that, if it could be generally introduced to our markets it would quickly banish the prejudice so many Americans have against mutton.

Almost a century has passed since the foundation of the Shropshire Down breed was laid by crossing the Cotswold and the Leicester on the original stock found on Morle Common, a tract of some 600,000 acres in England. The original sheep had horns, and brown or black faces they have retained, and the legs are dark gray. In those parts of America where the wool is the object for which the flock is kept, the Shropshires will be found profitable; where both wool and mutton find ready market, it may be doubted if a better breed can be kept.

Importations of Shropshires to America are increasing in volume and frequency. There are now in the vicinity of Chicago a number of flocks of much merit, and other flocks are scattered through the country from Canada to Texas. For the good of a land, which in the first seven months of last year paid more than \$40,000,000 to other countries for wool and woolen goods, it is to be hoped that every reasonable effort will be made to extend a knowledge of the characteristics of this breed, and to impress its value upon the minds of our people.

Breeders of the Shropshires in America are thinking of taking measures for opening a register in which, under proper regulations as to proof of pure breeding, etc., Shropshires in America may be entered.—*Practical Farmer.*

LITERARY AND PERSONAL.

THE WEEKLY LEDGER AND MARKET DIRECTORY.—Published by Wm. A. Halbach, No. 5 North Duke street, Lancaster, Pa. An eight-page folio, devoted to matters and things in general, a sort of *almanac* of civil, political, agricultural, domestic, mechanical, commercial and literary affairs, including, by way of variety, "wit and wisdom" and things of "pith and point." A new enterprise, and a very creditable one, both in mechanical make-up and in literary details. We wish it the success it seems so eminently to deserve, although there are so many more books, magazines and papers now published

than seem to be thoroughly read and properly digested, that each new publication amounts about to an additional "infliction," unless it is of unquestionable merit.

HOME LIGHT.—"Devoted to Moral, Instructive and Entertaining Literature." Chicago, March, 1884. An eight-page folio published at 85 cents per year, with a book premium (perhaps, with a *bellevue* would read better). A good paper of its kind, and ought not require a premium to make it "take."

THE FARMING WORLD.—"A record of experiences," "a journal of to-day." Cincinnati, Ohio, 75 cents a year, sent monthly. A royal folio of eight pages, with a respectable number of contributors, and a very large number of advertisements, two material elements that go a great way in sustaining a paper. Edited by T. S. Gardner. Its mechanical execution, and its agricultural and collateral literature are of no inferior order, and on the whole it is worthy of the patronage of the public.

GREEN'S FRUIT GROWER.—Devoted to the fruit farm, the garden and the nursery. Also an eight-page folio, amply illustrated, published at Rochester, N. Y. Quarterly at 50 cents a year. Chas. A. Green, editor. This journal is well and favorably known, "both far and near," and continues to deserve the reputation it established at its first inception some four years ago. Although nothing that we could say would add to its merits, still we are happy that we have an opportunity to record it as a *first class Journal*, and that we regard its place in journalistic status a No. 1.

THIRD REPORT OF THE UNITED STATES ENTOMOLOGICAL COMMISSION, 1880, 1881 and 1882; by Profs. Riley, Packard and Thomas, and Report of the Commissioner of Agriculture for the year 1883; by Hon. Geo. B. Loring. We acknowledge ours—! under personal obligations to Doctors Riley and Loring for complimentary copies of the above-named works, and hereby tender our sincere thanks for their kind recognition of us. These volumes comprise 955 pages, royal octavo, with six folding maps, 112 full page plates, and 22 separate additional figures; besides hundreds of pages of tabulated statistics. On the whole, they are the most elaborate, statistical, historical, analytical, physiological, anatomical and descriptive works, perhaps, ever issued by the Agricultural and Entomological Bureaus of the Government, and favorably illustrate the efficiency of the present heads of those departments.

The third report of the Entomological commission particularly, is an elementary work that ought to be in the hands of every intelligent farmer and fruit grower, as it methodically classifies, and treats in detail on the history and habits of some of the most noxious species of insects that infest the fruits of the farmer's labors. It should not only be in his possession, but it should also be read and thoroughly studied by him, if he desires to make that intelligent progress against insect invasion which is so necessary in protecting the work of his hands against insect depredation. If the farmer suffers from insect invasion it is not because of the paucity of practical entomological literature, but because of his own supineness or indifference. If every other man in the community were a practical entomologist, and daily published his researches to the world, it would benefit the farmer nothing in his warfare against noxious insects, unless he himself "put his hand to the plow," and carried the practical teachings of entomology into effect. A period has arrived in the agricultural status of the country, and perhaps of the civilized world, when it becomes the strictest folly for the tillers of the soil to regard the teachings of the entomologist, and the depredations of insects with impunity. Although the *habits* of insects, and the best remedies for their prevention or extinction are matters of primitive concern. Yet the discriminating knowledge involved in their anatomy, classification and nomenclature, are equally important.

THE FULCRUM KEEPER.—A journal for every one interested in making poultry pay. W. V. R. Porvis,

publisher, Chicago, Ill., 50 cents a year in advance, at 89 Randolph Street. A remarkably handsome quarto monthly of 16 pages, edited by P. H. Jacob. This is an entire new candidate for public patronage, and as every one who touches poultry at all, is interested in the *pay* question, there ought to be a general rush for the subscription books; for, we have never seen the same quantity and quality offered as such a low price.

The material, the literary matter, and the mechanical make-up are of the very best quality, could anything be more excellent than the pair of "Wyandots" that embellish the first page?

The limited area of France produces \$100,000,000 worth of eggs and poultry annually. It seems very clear that the poultry business pays in France, *pay*s away. There is little danger of the business being overdone anywhere. We have been looking these 30 years for eggs and poultry to "come down," but instead, they are "going up." "Old hunkers" can learn through the rich columns of this journal, *how* to make it *pay*. Mark that.

KANSAS.—Information concerning its agriculture, horticulture and live stock, together with state matters relating to vacant lands, schools, churches, manufactures, wealth, mineral resources, etc., etc. Prepared by the State Board of Agriculture, and published as a guide to those seeking homes in the West. Wm. Sims, secretary, Topeka, Kansas, 1884. An illustrated octavo pamphlet of 60 pages, and a most magnificent colored county map of the State, embracing copious statistics of all the leading industries of the State, executed in the highest style of the printers' and paper-makers' art, and especially valuable to those who propose to make Kansas their ultimate home.

REPORT on the distribution and consumption of corn and wheat, and the rates of transportation of farm products. March, 1884. Washington, D. C. From the Division of Statistics, Department of Agriculture, new series, Rept. 5. 44 pages octavo, uniform with the usual bulletins of that office, containing a large amount of tabulated matter of interest to the farming and indeed the whole community.

PRINT BUTTER.

In this issue we give an illustration of a Self-Gauging Butter Print, and a Shipping Box, manufactured by A. H. Field, of Philadelphia, Pa.

This plan of making butter into prints, and shipping to market in boxes, is coming rapidly into favor.

In these days of imitation and adulteration, a dairyman making a first class article of butter, and printing it with his own particular stamp, using his initials or monogram, will get and retain customers, who will have no other. A farmer's particular stamp on his butter becomes as fully a recognized proof of its quality by his customer as his signature the genuineness of his check by his banker. So we would urge upon the farmer the importance of making a uniform good article, putting it up in neat packages, with his own particular stamp printed on each lump so distinct as to be recognized by even a table boarder at a hotel on second sight, and thus command the price.

Gilt-edged prices are obtained only for butter put up in fancy prints, and it is a fact that "gilt-edged" butter is recognized oftener by the stamp than by the quality.

This seems to be the one successful way of competing with oleomargarine. The worst enemy the dairyman farmer has to contend with is artificial butter, either as oleomargarine, buttrine or other fines. These are not competitors, as some suppose, but enemies, for they do not compete in fair and open market for the consumer's favor, but in disguise as real butter, thus robbing the farmer and defrauding the consumer. Of the immense amount of artificial butter manufactured not one pound in five hundred is used knowingly by the consumer, consequently it flourishes only as a deception and a fraud. If Field's plan were adopted by creameries and dairymen, it would put the genuine article where it should stand, and put an end to the competition with oleomargarine and imitation butter.

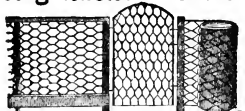


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EDITED BY DR. S. S. RATHVON.

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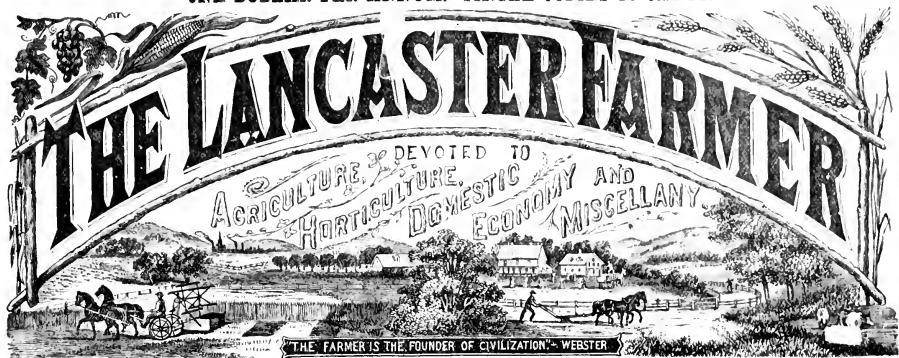
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Dr. S. S. RATHVON, Editor.

LANCASTER, PA., MAY, 1884.

JOHN A. HESTAND, Publisher

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

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PENNSYLVANIA RAILROAD SCHEDULE.

On and after SUNDAY, JUNE 31, 1883, trains leave the Depot in this city, as follows:

WE TWARD.	Leave.	Arrive
Pacific Express.....	1:55 a. m.	Harrisburg, 2:55 a. m.
News Express.....	6:25 a. m.	7:50 a. m.
Way Passenger.....	6:29 a. m.	8:50 a. m.
Mail Train via Mt. Joy.....	9:30 a. m.	10:50 a. m.
Mail No. 2 via Columbia.....	9:35 a. m.	11:05 a. m.
Niagara Express.....	9:45 a. m.	10:55 a. m.
Hanover Accommodation.....	9:50 a. m.	Col. 10:20 a. m.
Fast Line.....	1:35 p. m.	2:55 p. m.
Frederick Accommodation.....	1:45 p. m.	Col. 2:15 p. m.
Lancaster Accommodation.....	2:30 p. m.	4:00 p. m.
Harrisburg Accommodation.....	2:30 p. m.	7:30 p. m.
Columbia Accommodation.....	7:30 p. m.	Col. 8:15 p. m.
Harrisburg Express.....	7:40 p. m.	8:50 p. m.
Western Express.....	11:10 p. m.	12:25 a. m.

EASTWARD.

Leave.	Philadelphia
Mail Express.....	2:55 a. m.
Philadelphia Express.....	4:25 a. m.
Fast Line.....	7:50 a. m.
Harrisburg Express.....	8:10 a. m.
Columbia Accommodation.....	11:45 a. m.
Seashore Express.....	3:15 p. m.
Johnstown Express.....	5:05 p. m.
Day Express.....	5:25 p. m.
Harrisburg Accommodation.....	8:45 p. m.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 1:35 p. m., and runs to Frederick, Hanover Accommodation, west, connecting Lancaster with Niagara Express, at 9:45 a. m., will run through to Hanover daily except Sunday.

Harrisburg Express, west, at 7:40 p. m., has direct connection to Columbia and York.

The Fast Line, west, on Sunday, when flagged, will stop at Downingtown, Coatesville, Parkersburg, Mount Joy, Elizabethtown and Middletown.

The Johnstown Express from the west, will connect at Harrisburg on Sundays with Sunday Mail east, for Philadelphia, via Marietta and Columbia.

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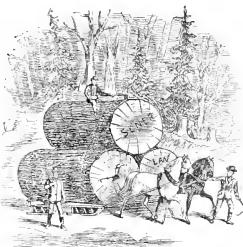
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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., MAY, 1884.

Vol. XVI No. 5.

EDITORIAL.

MAY.

"He soon was followed by a maid
That strewed the way with flowers,
And bid me lie along with her
Unto the green-wood bowers,
There no peril, there no danger
Throughout the live long day,
Should e'er betide the weary stranger
Along the Sylvan way ;
Around her brow was bound a wreath,
Of rich and rare perfume ;
Cull'd from the countless floral ranks,
That in the meadows bloom.
Her auburn locks were intertwine'd,
With pearls and blue bells gay ;
Her rosy cheeks and cheering smile,
Revealed the 'gentle May.'"

This is the *Fifth* month of the year, according to our present reckoning ; and here again, there are different opinions as to the origin of the name. One authority states that *May* is so named in honor of the goddess *Maia*, daughter of Atlas and mother of Mercury, by Jupiter ; whilst another authority states as distinctly that *May* is not derived from *Maia*, but from the Latin *Maius*, i. e., *Magnus*, from the root *Mag*, and is synonymous with the Sanskrit *math*, to grow ; and means the growing or shooting month, alleging that the word existed long before either *Mercury* or *Maia* had been introduced. Among the ancient Romans, in this month, held the festivals of *Bona Dea*, the goddess of chastity, and the feasts of the dead ; Nevertheless, among the common people a superstition existed that it was unlucky to marry in the month of *May*. The first day of *May* or *May-day*, and during the calends of the month, the Roman youths used to go out into the fields and spend the time in dancing and singing, in honor of *Flora*, the goddess of fruits and flowers. The early English consecrated *May-day* to Robin Hood and the Maid *Marian*, because their favorite outlaw died on that day. The villagers also set up *May-poles* and spent the day in archery and dancing. In our latitude *May-day* never became very popular, it being decidedly too cool for out-door sports, as a general thing, and hence the traditional festival, so far as it has been observed, has been transferred to June, except on very special favorable occasion.

The French and Prussian name is *Mai* or *May* ; The Spanish *Mayo*, the Portuguese *Mai*, and the Italian *Maggio*, and properly speaking according to one authority, the term, fundamentally, means mother, might, and power. The Saxons termed it *Trinilki*, because they began to milk their cows three times a day in this month.

During this month all nature seems to be enjoying the return of spring, and the thrifty farmer, by the middle of the month, will have finished much of his planting and sowing, except perhaps, his Indian corn, which, if the weather is cool and unfavorable, may be protracted to the month of June. Much garden and field vegetation requires for its normal

development a given measure of heat and moisture, and if these are not present the seed had better not be in the ground. The various beans, beets, cabbages, carrots, peppers, cutflowers, cucumbers, lettuce, melons, may now be planted, and celery, parsnips and salsify weeded and cultivated ; not forgetting the broccoli, radishes, spinach, squashes, tomatoes, sweet and common potatoes, if the weather is favorable. Of course the intelligent and practical farmer and gardener will know the when, the where and the how of these things much better than we can instruct him ; nevertheless, it has been alleged, over and over again, that, considering their opportunities, there is a lamentable paucity of improved fruit and vegetables that find their way to the tables of farmers, taking them as a class. We know that this was the case fifty or sixty years ago, whatever it may be now.

During the month of *May* the flower garden is also a prolific source of refined manipulation, especially to farmers' wives and daughters ; and many of them are daily engaged in worshipping at the shrine of *Flora*. This surely is as it should be, for creative wisdom would not have permitted such a floral profusion if they were not of some use.

THE FARMERS' INSTITUTE.

From the proceedings of the *May* meeting of our Local Agricultural and Horticultural Society, which are published elsewhere in this number of the *FARMER*, it will be perceived that it is proposed to hold a *Farmers' Institute*, in the Lancaster Court House, on Wednesday and Thursday, the 4th and 5th of June, and that committees had previously been appointed to carry the project into effect, and that those committees have made very interesting and encouraging reports on the progress they have made. This is as it should be, for the material for a successful assembly of this kind abundantly exists in Lancaster county, and only requires an unselfish and energetic effort to bring it into practical effect. Such gatherings of the farming population, and the interchange of views on matters relating to their honorable and useful calling must result in ultimate good—far more indeed than mere exhibitions of product and handiwork, which are so liable to degenerate into a sort of frolic, in which many are only interested in the axe they have to grind. Besides, it is a more intellectual gathering than an ordinary fair, and something is needed to stimulate the agricultural intellect in an epoch when progress in all else seems to be making such onward strides. It is an entirely new thing in Lancaster county, and may ultimately culminate in a fixed institution that will dispense its usefulness annually at least ; and, there is no reason why such an institute should not hold its sessions semi-annually or oftener—indeed, every township in the county would be all the better by organizing auxiliary institutes. It now remains to be seen whether

this enterprise will be sustained by the farming population. It would be humiliating if the thing should fail for the want of an intelligent and sustaining presence. A judiciously formulated programme of proceedings ought to make the sessions of the institute the most interesting and instructive assemblages that have ever been held in Lancaster county, a credit even to the "great garden" of the "Keystone" Commonwealth.

THE "BLACK-KNOT."

(*Sphaeria morbosa*.)

It seems to be pretty generally conceded, that what is commonly known as the "Black-knot," is not produced by an insect at all, although in its young and sappy state it has formed a *nidus* for the development of different species of insects, and notably the notorious *curculio*. There are different species of these black excrescences on different trees and shrubs, and they are produced by different species of *fungi*, but the sour cherries and the blue plums have in times past been the special objects of their infestations. It has been determined by competent investigators that the black-knot which infests the cherry is a different species from that which infests the plum. But, perhaps the practical horticulturist may be indifferent about the species, so long as he has a reliable remedy wherewith to destroy the infection. All this may be well enough, so far as it goes, but at the same time, a scientific knowledge of any thing, added to a practical knowledge of it, will greatly facilitate the means employed in accomplishing its extermination. It seems surprising that so little advance has been made, among those most interested, in a knowledge of the history, the habit, and the classification of the different species of black-knots during the past fifty years. From various "landmarks" in our memory, it must have been about the year 1821 or 1822, when we first noticed the most conspicuous presence of the black-knot, on a row of cherry trees, that has ever come under our observation. We visited the place for a series of seasons, and every year found the black excrescences increasing in size and in number, and on a visit made about twenty years later, there was no evidence that cherry trees had ever grown there—everything, "root and branch" had disappeared. There were about a dozen of these trees in a row, along an avenue that lead to the farmhouse ; about half the number were of the variety known as "Morella," and these were the most infested, and first succumbed to the knotty infection. Through these knots, the "Morella" cherry finally became nearly obsolete.

We remember the profound regrets, and doleful complaints made, connected with the unwelcome presence of these knots, but we have no recollection of any attempt to counteract, remove, or exterminate them, by any remedial means. We think the popular opinion was, that the *disease*—as it was con-

sidered—was altogether arbitrary and incurable. Little advance was made as to the real cause of the black-knot, from the period of our boyhood down to the year 1865, other than the propounding of theories, all of which differed from each other.

The late B. D. Walsh, of Rock Island, Ill., in a paper published in the *Practical Entomologist*, dated March 5th, 1866, seems to have demonstrated as rational a system of the origin, development and prevention, or cure of the black-knot, as any that has come under our observations; and, in confirmation of the limited observations we personally made about the same period, and published in the *Gardeners' Monthly*.

The black-knot is neither a vegetable cancer, nor a gall, but is a *Fungus*, belonging to the same division of the Vegetable Kingdom to which the mushrooms, rusts, smuts and moulds belong, and propagates itself by means of *spores*, just as the higher organizations of the vegetable kingdom perpetuate themselves by means of seeds, nuts, etc. This fungus matures about the end of July, in this latitude—but earlier and later south and north of this—and when thus matured it scatters its spores abroad, not only on the same tree, but they are wafted by the winds to other trees. We may therefore reasonably conclude that if all the infected branches are removed, or the knots cleanly shaved off, during the latter part of June and first quarter of July—carefully burning the excrescences thus removed—"an effectual stop will be put to their further propagation." *Provided always*, that your neighbor who has similarly infected trees, does the same thing to them. Much depends upon contiguous co-operation, in the destruction of the pests of vegetation. Bear in mind; it will be useless to "lock the stable door after the horse is stolen." The removal of the black-knot must be effected *before* it ripens and matures its spores. That is pretty much all that it is necessary for the farmer or fruit-grower to know about it, except the date, which we have indicated in the foregoing. Backwardness or forwardness in a season may make some difference; it will therefore be safer to anticipate than to wait until it is too late; under any circumstances, we cannot remove a knot until one has formed.

By the middle of June the knot is sufficiently developed to afford an immediate recognition. It is then of a brownish color; soft, and fleshy inside, and of a greenish tinge, but towards the end of July it becomes a coal black outside, and inside of a rust color. Mr. Walsh says, "the first week in August the surface of the matured knot is covered with cylindrical filaments about one-eighth of an inch long, which doubtless bear the "spores." The blackness of the knot is due to the presence of numerous small *fungi*, about the size of the head of an ordinary pin, and from each plant, or at least each female plant, the little filaments spring up; and after they cast their spores they soon fall off. The same thing occurs on what is called the "Cedar Apple," and the fruit of the hawthorn. Two or three years ago we attended a "picnic," in the vicinity of which was a hawthorn hedge, into which we had occasion to penetrate in order to secure a subject; and, we came out of the

ordel covered with reddish rust—spores of a fungus, doubtless a species of *Sphæria*. The fruit was covered with little radiating filaments. Now, we would not advise any one to wait until these filaments appear, for, at the least touch they may "go off" and discharge their pernicious seeds far and wide. Of course, many millions of these spores never germinate at all, but some will be surrounded by congenial conditions and grow. Millions are washed off by showers and carried in rivulets to larger streams, thence to rivers and oceans. Enough remain, however, to perpetuate the species.

EXCERPTS.

PRETTY bedroom curtains are made of a single width of crimson ottoman cloth over a second pair made of antique lace.

THE essentials to success in onion culture are plenty of manure, thorough fitting of the ground, good seed and clean cultivation. Here is the whole story in a nut shell.

IT is not necessary to have a vineyard in order to have a supply of grapes for home use. A dozen vines properly cared for will give an abundance of this most desirable fruit for an ordinary family.

IT is not right to milk slowly. It exhausts the patience both of the animal and the milk-er. Quickness in milking and patience in stripping will give the most milk and be most satisfactory to the cow.

UNLESS you are able and willing to personally superintend the scalding of your milk pans it would be better to use earthenware. Nothing but boiling water and plenty of it will remove the germs of disease that lurks in the half washed tin vessel.

IF you have any spare land, with no prospect of being put to remunerative use, suppose you plant a few forest trees. It will pay, and even if you don't live to see the day of the golden harvest, your children will.

A POULTRY-RAISER in Georgia finds chopped or pulped yellow turnips a very valuable food for fowls during the winter. He prefers whole corn for the last feed at night, but uses vegetables, unmarketable rice, and small grain at other times. With a variety of cooked food for fowls he gets eggs all winter.

A CORRESPONDENT of the *London Electrician* says the following is an instant remedy for toothache: With small pieces of zinc and a bit of silver (any silver coin will do), the zinc placed on one side of the afflicted gum, and the silver on the other, by bringing the edges together the small current of electricity generated immediately and painlessly stops the toothache.

A GROWING, living tree robs the soil of water, and, to some extent, of fertility, for a wide distance. This is distinctly seen in fields devoted to hoed crops. It is scarcely possible to manure highly enough to bring corn or potatoes under or near trees to the average in other parts of the field. Butter-nuts or hickory are especially injurious to hoed crops near them, possibly because the wash from their leaves positively injures the soil.

THE *Husbandman* says: "There is no danger whatever that apples, peaches, pears or

any other useful fruit will be produced in excess of the demand. The truth is, demand keeps pace with production. People will use a great deal more fruit when it is plentiful, and when they acquire the habit of using, they retain it. There is, perhaps, no branch of farming that yields safer or more steady returns than orchard fruit."

A GREAT convenience is found in this simple contrivance: Have a tin dish made tapering and with a long handle; have it small enough around so that you can place it inside the tea-kettle; it is invaluable when there is sickness in the family, as there are so many occasions when one needs to cook gruel or custards at short notice, and with perfect immunity from the danger of burning, even though constant attention cannot be given them.

To renovate alpaca or black cashmere dress goods, rip the dress and fold the pieces ready to place into a preparation made as follows: Two ounces of borax, one ounce of gum arabic, dissolved before adding to the mixture enough hot rain water to cover the goods, which should be made very blue with bluing, such as is used in rinsing white clothes. Stand until cold, or over night. If needed, one tablespoonful of the extract of logwood can be added, mix well before adding the goods. Press on the wrong side, very wet, with hot irons.

IF your earthen pie-plates are discolored rub them well with whitening or sand soap.

A LITTLE powdered charcoal will cleanse and sweeten bottles if it is well shaken about in them.

A WELL-BEATEN egg is a great addition to a dried apple pie, giving lightness and a good flavor also.

WHITE shades for gas or lamps may be beautified by covering with a lace veil dotted with gold spots.

A PIECE of soft sponge tied upon a smooth stick is very convenient to use in greasing tins or the griddle.

IF the stair-rails are dingy their appearance may be improved by washing them with a little sweet milk; polish them with a flannel cloth.

TO CLEAN CARPETS.—Dampen some Indian meal, mix salt with it, and sprinkle over the carpet; sweep vigorously. Take a small sharp-pointed stick to remove the salt and meal from cracks and corners.

PAINT which has become dry and hard may be removed by rubbing the spot with oxalic acid and diluted with water. Try a weak solution first, and if it does not remove the stain, increase the strength.

NEVER mulch anything in the spring till the ground has become warm.

THE most prolific cause of disease among fowls is uncleanliness of their quarters and runs.

A CORRESPONDENT of the *Ohio Farmer* counsels us not to sow the wrinkled varieties of peas too early. The small, smooth sorts are the tough ones. Nine-tenths of those who complain that their seed "don't come up," sow the tender sorts.

A VERMONT dairyman says a young calf

should be fed three times a day. Over-feeding at long intervals, and especially with cold food, kills a good many valuable calves.

MR. R. S. BEMIS, Chicopee Mass., bought seven and one-half acres of land for \$98.85, sowed it to pine, chestnut and oak, and in about twenty-five years sold the recovered acres for \$750.

It is all important to give early chicks some flesh cut very finely, such as beef, bacon or mutton. Nothing seems so delicious to them as these occasional meals, which they swallow with great avidity.

A GOOD cow may be a first-class milker, and give satisfaction with liberal feeding, but she cannot fulfill the expectations required of her when all the conditions of food, water and shelter are unfavorable.

Do not base swine-feeding upon the idea that pigs will eat anything. They are, indeed, not very choice in their selection of food, but growth and health are best promoted when they are fed on a variety of food.

A WRITER in *Gardening Illustrated* found some tea roses dying, and on examination discovered that the roots of a white poplar had expanded under a hawthorn hedge and beneath a border seven feet wide, and had exerted a fatal influence on the rose. The roots of the tree were three-fourths of an inch thick at twenty feet distance from the trunk. A case occurred under our own observation where the plants in a circular bed of roses, deeply dug and highly enriched, were feeble in growth, and with few and small flowers, although fully exposed to sunlight. The difficulty was that some trees at a distance had thrown their long roots into the bed. Another bed was made, away from any trees, and the roses removed to it, where they have grown and bloomed luxuriantly. The first bed was planted with verbenas, and these have grown and flowered profusely, being less sensitive than the roses. There is no doubt that shrubs and herbaceous plants sometimes become feeble and die from mysterious causes, when the trouble is nothing but long roots.

SALT around the roots of blackberries is said to be a cure for rust.

CANADA converted 300,000 bushels of turnips into different kinds of jams last season.

NEARLY 1,000 head of polled Angus cattle were imported into this country last year.

APPLES are being imported from Germany, and we should be able to supply ourselves.

BROOD sows should have nice, warm, dry pens, and should be kept quiet and well bedded.

AMONG those crops considered as exhaustive to the soil may be mentioned tobacco, oats, sorghum, millet, forage corn, etc., while peas, potatoes, clover and peanuts are supposed to increase the productiveness of the soil. It depends, however, upon whether the crops are totally removed or not. Grain crops, when sold, and the straw removed, are exhausting. Tobacco is usually all removed. Wherever animals are kept to consume some portions, by which the crops may be partially returned in the shape of manure, the land will endure quite a period of cropping without being exhausted.

THE English sparrow, according to the

veteran seedsmen, J. J. H. Gregory is a great enemy of the seed-grower.

CLOVER hay is much better for milch cows than timothy. It produces a larger quantity of milk, and also of a better quality. All butter-makers know how yellow the butter is which is made from the milk of cows fed on clover hay.

A FARMER of Enfield, Conn., reported to the Connecticut Board of Agriculture that from his one and a-quarter acre peach orchard, set seven years ago, he has already realized \$2000. His peaches have retailed in Boston at 20 cents each.

AN Ohio farmer washes his apple trees every spring and fall with a strong lye that will float an egg, and finds it to be sure death to the borers. He claims that he has not lost a tree since beginning this practice, although he had lost several previously.

THE practice of mulching young trees after they are set out seems to be growing in favor. It keeps the soil cool and damp during the summer, and prevents plants from drawing from the soil. The mulch should extend well out from the base of the tree.

Do not expect the hens to lay when they are left to scratch for themselves on the frozen ground. Eggs are very rich in nitrogen and carbon, and cannot be produced from nothing. In order to procure a supply the material of their composition must be supplied.

MONTANA flocks increase in a fivefold ratio every three years—that is, there are five times as many sheep there now as there were three years ago.

It is said that Mrs. R. B. Hayes owns and personally superintends at her home in Fremont, Ohio, one of the best poultry yards in the United States.

BEEF, parsley, onion and dandelion seed are said to be among those which must be used when fresh, while cucumber and squash seed are better when old.

Cows that are about to calve should be separated from the herd, and the food should be of a sloppy nature, not too concentrated, in order to avoid milk fever.

PROF. STEWART states that ten pounds of turnips, with one and a half pounds of corn, will fatten a young sheep or lamb faster than three pounds of corn alone.

At a California county fair were exhibited squashes weighing 175 pounds, melons 60 pounds, carrots 2 feet long, quinces 4½ inches through, and pears 6 inches long.

Those who are accustomed to using the hoe for the garden will find the wheel hoe excellent for many crops, thereby saving labor, and the work can also be done as well.

THE Poland-China hog, like all others, is the result of various crosses. Their principal merit, however, is due to the Berkshire and the big-boned China, the one almost the opposite of the other.

ACCORDING to a writer in the *Indiana Farmer*, the germs of fowl cholera enter the system by the digestive organs, and they are generally taken with food. The contagion is spread by means of the excrements of sick fowls or the flesh or other parts of dead ones. Frequently, no doubt, it is carried consider-

able distances by small birds, which are also subject to it. No absolute cure is known, but by proper use of disinfectants the disease can be prevented. When cholera is in your neighborhood watch your fowls, and if disease appears remove the sick ones and disinfect the yards with a sprinkling of water and sulphuric acid, in the proportion of eight gallons to eight ounces.

A CORRESPONDENT of the *Rural New Yorker* describes the following method by which an extraordinary crop of water-melons was raised: Holes were dug ten feet apart each way, eighteen inches square and fifteen inches deep. These holes were filled with well-rotted manure, which was thoroughly incorporated with the soil. A low, flat hill was then made and the seed planted. When the vines were large enough to begin to run the whole surface was covered to the depth of a foot or fifteen inches with wheat straw. The straw was placed close up around the vines. No cultivation whatever was given afterward; no weeds or grass grew. The vines spread over the straw, and the melons matured clean and nice. The yield was abundant, and the experiment an entire success. This is truly worth trying next year.

VICK'S MAGAZINE says that the best preventives of mildew on roses are good drainage, high manuring, selection of strong varieties, proper pruning and dusting with sulphur as soon as it appears. It is contagious, and some varieties are more subject to it than others.

WHEN the rich, black liquid is flowing away from the manure heap it indicates that the most available and soluble portions are being lost. Such liquids may be saved in various ways, such as through the use of absorbent material, or putting it over the solid parts as fast as it accumulates. The liquids are more valuable than the solids.

THE question whether old cows are profitable when they have ceased to be of service in the dairy is thus answered by the *English Farmer*: "Old cows that have milked to the very last are not worth much to the butcher. If a cow of about 15 years of age could be had for nothing she would hardly bring in any profit by fattening, for in proportion as her life become exhausted so will digestion gradually fail."

CROSSING the Guernsey and Short-horn has proved a very successful experiment, the result being an animal that produces a fair quantity of very rich milk, while being used for dairy purposes, and also an excellent animal for the butcher when no longer required for milk. It is only by systematically breeding from our thoroughbreds that a combination of good qualities can be secured in an animal, as scrubs possess not uniformity in any respect.

ORCHARD trees should be pruned before the buds swell. We do not believe in pruning a tree much after the first two years following planting. But the tops should be kept so open that the air and sunshine can readily enter. "Water shoots" should be kept cut out. Cover the wounds with wax or paint. Thick paint is as good as wax, as it excludes both air and wet. Mineral paint is cheap. Some recommend shellac varnish, but we have never tried it.

CONTRIBUTIONS.

POULTRY RAISING.

FOR THE LANCASTER FARMER.

MR. EDITOR:—As many of my old friends are desirous of knowing what success I have had in the poultry business in Kansas, I give you my experience. Over a year ago I made two very crude hatchers, designed from some good points of several I had seen. I filled them with eggs and they worked fairly well. I kept them going from December 1st to June 1st, clearing from them \$65.00, over and above everything and that too in spite of the high price of feed and the fact that my chickens were marketed at low prices, the highest I got was \$6.00 a dozen, the lowest \$3.75; during that time I had attended to my usual business. Believing this was a good return for the amount of work, I began to look around for a more perfect hatcher and my attention was directed to "The Common Sense." In June I got directions from J. M. Bain, New Concord, Ohio, he is Secretary of the N. A. Poultry Association, and I will send directions for making this hatcher to any one sending three-two cent stamps to prepay postage. I had one made that held 250 eggs, cost about \$7.00. My success with this hatcher was all I could wish for and I immediately had four more made, from these five hatchers I have just taken 1030 fine chicks out of a little less than 1200 eggs. I believe that I am placing it modestly when I say that I hope to clear \$2000 by July next and I still pursue my usual business. There is no business as profitable as this, provided one gives it the attention it deserves and no business requires as little capital to start on. There is no necessity of men trying to hide the business, or monopolize it. The field is the World and the World like Oliver Twist is crying out for more. There are thousands of young men who are teachers, clerks, etc., who look forward to get a start in some lucky way, this way is here open for them if they will only improve by it. Thousands of young women too, who feel dependent on some father or brother who in one year could place themselves high above any dependence; if they only would. Get directions and make your hatchers immediately. You can make them yourselves, Respectfully Yours, L. L. J.

EMPLOYMENT FOR WOMEN.

FOR THE LANCASTER FARMER.

MR. EDITOR: Much has been written regarding proper and remunerative employment for women; silk culture, poultry raising and many other themes have been thoroughly ventilated and the result has no doubt been very beneficial. But there are many ladies who have no opportunity to raise silk worms or follow any employment of that kind. To this class I wish to open what to me was entirely a new field. Some three months ago an uncle of mine from Albany, N. Y., was visiting at our house. We were talking of plated ware which he was engaged in manufacturing. To gratify my curiosity he made a plating machine and repaid our knives, forks, spoons and castor. It only cost four dollars and it done the work perfectly. Some of our neighbors seeing what we had plated wanted me to plate some for them. Since then I have

plated twenty-two days and cleared during that time \$94.34. At almost every house I got from two to three dollars worth of plating to do, and such work is most all profit. Just for replating one dozen teaspoons I got \$1.75. This work is as nice for ladies as for gentlemen, as it is all indoor work and anyone can do it. My brother, although he worked two days longer than I did, cleared only \$91.50, I am getting up a collection of curiosities. To any of your readers sending me a specimen I will send full directions for making and using a plating machine like mine that will plate gold, silver and nickel. Send small pieces of stones, ores, shells, old coins, &c. Any kind of geological specimen will do. What I want is to get as many different specimens from as many different places as I can. Please address Miss M. F. Cassey, Oberlin, Ohio.

BROOKVILLE, O., May 12, 1884.

EDITOR LANCASTER FARMER.—Sir: I believe I wrote, in my last communication, how the character of the soil, depended on the character of the rocks upon which the soil was superimposed, as the surface rock from Lake Erie, to south of Nashville, Tenn., is the Silurian limestone, it is an uplift which made this region dry land before the material, that constitutes the Alleghany and Rocky Mountains, was deposited on the bottom of a recent sea. This is therefore an old country, about the first to become dry land on the globe. From the center of this uplift the dip, westward for hundreds of miles is about six feet to the mile, eastward it is a little more. The soil produced by the disintegration of this rock is the best in the world, it will never need any lime, that is, in abundance. The glacial ice coming from the north produced the clay as far south, and a little further in places, as the Ohio river. South of this river the erosion was from glacial ice moving from different directions. The Ohio, Kentucky and Cumberland rivers run through this uplift in canyons several hundred feet deep. The railroad bridge across the Kentucky river is 276 feet above the water in the river. The Miami valley and blue grass region of Kentucky, is on this uplift, and a part of Middle Tennessee. In Ohio the Miami and Scioto rivers run parallel to the axis of this uplift, but the Ohio, Kentucky and Cumberland rivers run westward through this uplift.

In the creeks and rivers of this formation, alluvial gravel of excellent quality for macadamizing roads exists in abundance. All the principal roads in this county, (Montgomery) are turpiked with this gravel. This gravel is also a product of glacial erosion. These turpikes are all free in this county, except one or two. The county commissioners have made and bought these roads; made some by taxing the land along the roads, and others that had been made in that way, bought with county funds. The county commissioners had these appraised, and took them at the appraisment.

The farmers are restless on account of their inability to plow and plant corn, on account of frequent rains and cool weather; but little corn has yet been planted. Wheat, barley, and grass fields look unusually promising. Wherever there is a live limb on an apple

tree, it is full of blossoms; but peaches none, pears but few and them on the tops of trees; only a partial crop of cherries, of small fruits; except blackberries, we shall have plenty. Only a few of our grape vines are alive. When the mercury is 24° below zero, as it was several times last winter; they are surely frozen. I hear no complaints of the depredations of insects yet, not even the "fly" in the wheat; but what is in store for us in the future, in this respect, remains to be found out. We feel under obligations to you for what you write on the subject of entomology. Some one has said that God was great in big things, but another has truthfully said that he is greatest in little things; even in little bugs, and worms. G.

SELECTIONS.

GREAT MILK PRODUCERS.

The two three-year-old Holstein heifers, Jamaica and Ethelka, owned by Mr. John Mitchell, of Meadowbrook Farm, six miles from this city, have beaten the record for milk production. A comparison of their yield of milk, made a few days ago, with the best previous record, that of Clothilde, a three-year-old belonging to Smith & Powell, large importers at Syracuse, N. Y., shows that both Jamaica and Ethelka surpassed the yield of Clothilde, the former nearly doubling it. Since then both heifers have increased their yield so fast that Mr. Mitchell is astonished, and marvels at what the end is likely to be. Besides exceeding the best score for three year olds in milk production, Jamaica has also produced in one week 26 pounds and 3 ounces of unsalted butter. The records are kept by Mr. Mitchell and his sons, and there is no question about their accuracy.

The statement below will show that both heifers have beaten the great cow, Aggie, owned by Smith & Powell, and which yielded in one day 84 pounds and 12 ounces, and the still greater cow, Ondine, owned by G. S. Miller, of Peterboro, N. Y., which gave 91 pounds. The statement is for 31 days, ending Saturday, March 15. The yield is given in pounds and ounces:

JAMAICA'S RECORD.

	Field.	Daily Average.
Best 1 day's milking.....	110.1	110.1
Best 2 course, days' milking.....	229.2	114.6
Best 3 course, days' milking.....	327.10	109.35
Best 5 course, days' milking.....	555.2	109.7
Best 10 course, days' milking.....	776.15	104.7
Best 15 course, days' milking.....	1,034.3	103.6
Best 21 course, days' milking.....	2,102.11	100.2
Best 31 consec. days' milking.....	2,967.7	96.35
Total product.....	6,826.12	72.10
Number of days in milk to March 15, 98.	94.	

ETHELKA'S RECORD.

Best 1 day's milking.....	101	
Best 2 course, days' milking.....	193	96.8
Best 3 course, days' milking.....	284.8	94.12
Best 5 course, days' milking.....	458.8	91.7
Best 10 consec. days' milking.....	813.10	81.7
Best 21 consec. days' milking.....	2,284.6	85.3
Total product.....	5,586.10	96
Number of days in milk to March 15, 98.	59.	

The cows Aggie and Ondine, above alluded to, have been looked upon as being phenomenal milk producers, but the young heifers Jamaica and Ethelka now stand at the head of the list. Previous to the publication a few days ago of Jamaica's one-day yield of 103½ pounds of milk, about 5½ quarts, Mr. Mitchell was offered \$15,000 for her and her three months old heifer calf, but since then a well-

known breeder of fine stock has offered \$25,000 for the heifer and calf. Mr. Mitchell says that he has also been offered \$10,000 for the calf alone. Both offers have been declined. Jamaica's first offspring was a bull calf, and it was purchased by Mr. C. C. Smith, a neighbor, at a small price. Since the great yield of its mother, Mr. Smith has declined \$11,000 for the yearling bull.

IMITATION BUTTER.

The New York State Senate committee which has been investigating adulterations of food, says in its report that it has discovered alarming wholesale adulterations, which are dangerous to the customer and which are depreciating property in the rural districts. The adulteration of butter by tallow oil, bone oil, and lard oil was found in almost every town and city in the State and in an amount which equals half the production of the natural article. The imitation is so disguised that often it can only be detected by chemical analysis. Out of thirty samples of alleged butter purchased by the committee in New York only ten were genuine.

No labels to distinguish the pure from the bogus butter are displayed, as required by the existing law. Bogus butter is largely purchased by saloons, boarding houses and second-class hotels. The poorer qualities of bogus butter sell for from twenty cents to thirty cents to laboring men, and the best grades at forty or forty-five cents. The cost of manufacture ranges from twelve to eighteen cents, the average being fourteen cents. The manufacture in New York State is chiefly carried on in New York and Brooklyn, several concerns manufacturing over 3,000,000 pounds each out of fat brought from the West, from France, and from Italy. The bulk of the bogus butter is manufactured in the West and sold in New York to the detriment of the State's dairy interests. Many dairy farmers have been driven out of business in consequence. The loss to the State is estimated at from \$5,000,000 to \$10,000,000 yearly. The committee estimates that 40,000,000 pounds of the product are sold annually in the State, and the illegitimate business is breaking our export butter trade. The effect of the deception in the trade is deleterious to business morals. Butterine can be sold at eighteen cents less than natural butter.

The committee quote extensively from the evidence obtained to show the evil, moral, commercial and sanitary effects of adulterations. The use of nitric and sulphuric acids in deodorizing adulterated butter is particularly condemned. The committee recommends the total prohibition, after a given time, of the manufacture and sale of all butter adulterations. The committee also finds 200,000 out of the 500,000 quarts of milk furnished to New York daily in 1882 were water or skim milk. The committee recommends the appointment of a State inspector of milk, and also recommends that the officials to be chosen to enforce the anti-adulteration laws be selected from and represent dairy interests.

Accompanying the report was a bill by the committee. It prohibits under penalty of \$200 fine, or six months' imprisonment, the sale of adulterated milk, the keeping of cows for the

production of milk in an unhealthy condition, and the diluting of milk with water. It provides that every manufacturer of butter shall brand his name and the weight of the butter on the package. Cans for the sale of milk shall be stamped with the name of the county where the milk is produced, unless sold exclusively in the county. A penalty of from \$500 to \$1,000 and imprisonment for one year is imposed on the sale or manufacture of bogus butter or cheese. The State Dairymen's Association is appointed a commission to enforce the provisions of the bill, and \$30,000 is appropriated for the purpose.

CHEESE IN GENERAL COOKERY.

The *Popular Science Monthly* is copying from the British periodical "*Knowledge*" a series of articles, by W. Mattieu Williams, on "The Chemistry of Cooking," presenting a number of rather novel ideas that seem to deserve the consideration of housewives. We have made one or two brief extracts already, and copy below some directions for the use of cheese in dishes in which it is not often expected:

My first acquaintance with the rational cookery of cheese was in 1842, when I dined with the monks of St. Bernard. Being the only guest, I was the first to be supplied with soup, and then came a dish of grated cheese. Being young and listless, I was ashamed to display my ignorance by asking what I was to do with the cheese, but made a bold dash, nevertheless, and sprinkled some of it into my soup. I then learned that my guess was quite correct; the prior and the monks did the same.

On walking on to Italy, I learned that there such use of cheese is universal. Minestra without Parmesan would there be regarded as we in England should regard muffins and crumpets without butter. During the forty years that have elapsed since my first sojourn in Italy, my sympathies are continually lacerated when I contemplate the melancholy spectacle of human beings eating thin soup without any grated cheese.

Not only in soups, but in many other dishes, it is similarly used. As an example, I may name "Risotto a la Milanese," a delicious, wholesome, and economical dish—a sort of stew composed of rice and the giblets of fowls, usually charged about twopence to threepence per portion at Italian restaurants. This is always served with grated Parmesan. The same with the many varieties of paste, of which macaroni and vermicelli are the best known in this country.

In all these the cheese is sprinkled over, and then stirred into the soup, etc., while it is hot. The cheese, being finely divided, is fused at once, and, being fused in liquid, is thus delicately cooked. This is quite different from the "macaroni cheese" commonly prepared in England by depositing macaroni in a pie-dish, and then covering it with a stratum of grated cheese, and placing this in an oven or before a fire until the cheese is desiccated, browned, and converted into a horny, caseous form of carbon that would induce chronic dyspepsia in the stomach of a wild boar if he fed upon it for a week. In all preparations of Italian pastes, risottos, purees, etc., the cheese is intimately mixed through-

out, and softened and diffused thereby in the manner above described. * * *

I have now to communicate another result of my cheese-cooking researches, viz., a new dish—*cheese porridge*—or, I may say, a new class of dishes—*cheese porridges*. They are not intended for opiesnes, not for swine who only live to eat, but for men and women who eat in order to live and work. These combinations of cheese are more especially fitted for those whose work is muscular, and who work in the open air. Sedentary brain-workers like myself should use them carefully, lest they suffer from over-nutrition, which is but a few degrees worse than partial starvation.

Typical cheese-porridge is ordinary oatmeal porridge made in the usual manner, but to which grated cheese is added, either while in the cookery pot or after it is taken out, and yet as hot as possible. It should be sprinkled gradually and well stirred in.

Another kind of cheese-porridge or cheese-pudding is made by adding to *baked* potatoes—the potatoes to be taken out of their skins and well mashed while the grated cheese is sprinkled and intermingled. A little milk may or may not be added, according to taste and convenience. This is better suited for those occupations are sedentary, potatoes being less nutritious and more easily digested than oatmeal. They are chiefly composed of starch, which is a heat-giver or fatterer, while the cheese is highly nitrogenous, and supplies the elements in which the potato is deficient, the two together forming a fair approach to the theoretically demanded balance of constituents. * * *

Hasty-pudding made, as usual, of wheat flour, may be converted from an insipid to a savory and highly nutritious porridge by the addition of cheese in like manner. The same with boiled rice, whether whole or ground, also sago, tapioca, and other forms of edible starch. Supposing whole rice is used, and I think this the best, the cheese may be sprinkled among the grains of rice and well stirred or mashed up with them. The addition of a little brown gravy to this gives us an Italian risotto.

I might enumerate other methods of cooking cheese by thus adding it in a finely divided state to other kinds of food, but if I were to express my own convictions on the subject I should stir up prejudice by naming some mixtures which some people would denounce. As an example I may refer to a dish which I invented more than twenty years ago, viz., fish and cheese pudding, made by taking the remains from a dish of boiled codfish, haddock, or other *white* fish, mashing it with bread-crumbs, grated cheese, and ketchup, then warming in an oven and serving after the usual manner of scalloped fish. I frequently add grated cheese to boiled fish as ordinarily served, and have lately made a fish sauce by dissolving grated cheese in milk with the aid of a little bicarbonate of potash.

A FRUIT ALL MAY RAISE.

Many farmers dislike "to take up a new place," because it requires so long a time to bring fruit trees, bushes and vines into bearing. Most tenant farmers get along without fruit for the reason that none is produced on the farms they rent, and having only short

leases, they do not find it to their advantage to set out trees, grape vines or bushes that will produce berries. Many persons living in villages regret that they have so small an amount of land that they cannot raise the larger kinds of fruit. Now, all these persons can raise the most delicious fruit that grows in any climate. That fruit is the strawberry, and the plants are hardy and productive in every State and Territory in the country. In fact, it is extremely difficult to decide which offers the most advantages for producing this most delicious fruit. The strawberry does exceedingly well in those parts of the country where oranges, lemons, figs, bananas and pineapples abound, and does equally well in regions so far north that the most hardy apples will not mature. But a very small amount of land is required to raise enough strawberries to support an ordinary family. A square rod, if treated properly, will produce as many strawberries as a common family will require during their season. The plants multiply very fast. Every plant set out in the spring may be made to produce from ten to twenty plants during the season. By nurturing the parent plants the young ones will be strong and stocky. Strawberry plants come into bearing very quickly. If they are rooted in pots in the summer and set out early in the fall, they will produce a fine crop the following year. No other fruits except melons and tomatoes, which are generally ranked with vegetables, can be produced so quickly.

A person who does not wish to lay out much money in commencing with strawberries can procure early in the spring a dozen strong plants of some good variety and raise from them plants enough to set a square rod of land. By rooting the young plants in small pots like those used by florists they will be in condition to set out in September, and by mulching they will produce a good crop next season. The plants set out for propagating purposes should be planted in very rich soil, at considerable distance apart, and well cultivated. Runners will appear about the last of June. They should be allowed to spread in all directions. At the points where rudimentary plants should appear on the runners the little pots should be sunk in the ground and the runner held in place by a small stone, a forked stick, or a piece of wire bent like a hair-pin. The pots must be filled with rich earth, in which the roots will spread. Several good plants may often be obtained from the same runner. After they have all become established in the pots the runner may be cut and the original plant left to grow itself. The plants rooted in this way may be put into permanent rows without interfering with their growth. A hole being made with a trowel the pot is inverted and thumped on the bottom, the plant being caught in one hand. When placed in the ground it should be pressed firmly around the roots. The same pots may be used for rooting plants for several years. Good, strong plants may be raised by setting the propagating plants as directed above and allowing the young plants to take root in the ground. If carefully taken up when the soil is damp, as after a rain they may be removed some distance without injury. Plants raised near where they are wanted for setting do

much better than those obtained from a distance.

For garden culture the soil for strawberry plants should be well prepared. The spade is preferable to the plow for pulverizing it. Unless it is naturally very rich considerable well-rotted stable manure should be applied and incorporated with the soil while spading. Most of it should be buried quite deeply. The roots should be induced to penetrate the soil as far as possible. The plants will suffer less from drought if the soil is spaded deeply. If ground is scarce the rows may be sixteen inches apart, and the plants stand at the same distance in the rows. Next every fourth row a space two feet wide should be left for a path for convenience in cultivating the plants and picking the berries. If the plants are set out in the spring they should not be permitted to produce fruit that season. The flower stems should be cut off as soon as they appear so as to throw all the sap into the plant. For the same reason the runners should cut off. The stalks and runners may be easily pinched off when they are young and tender. If they are allowed to become tough it will be necessary to cut them. A sharp spade may be employed to cut runners. Little other attention will be required except to keep the ground free from weeds. With a favorable season the plants will cover about half the ground by fall. On the approach of winter the plants should be covered to the depth of three or four inches with long hay or straw. It can be held in position so it will not be blown away by the wind by laying rails along the paths. As the frost leaves the covering should be removed. Plants treated in this way will produce a large crop of very fine berries the year they are planted out. By forking up the soil between the plants and adding some more manure and soil, they will continue to produce well two or three years.

Persons having time and land to devote to strawberry culture can scarcely do better than to set one or two hundred plants each year and treat them as above directed for the sake of the crop they will have the year after they are set out. The berries produced on young plants are much larger and finer than those on old ones. When each plant stands by itself the berries ripen much better than when the plants are crowded. When ten plants kept in rich ground for propagating purposes the requisite number of young and strong plants can be raised. Strawberries of smaller size and poorer quality can be raised in a much easier way. The soil can be prepared with the plow and harrow, the plants set in rows from two and a half to three feet apart and the ground between them worked with a cultivator. If the rows are quite straight the cultivator may be run close to the plants without injuring them. Of course it will be necessary to use the hand hoe between the plants in the rows. Two or three good crops can be obtained from plants set out and tended in this way. Unless pains be taken to keep most of the runners cut off the plants become too thick to be strong, and the berries will be small. The soil becomes hard and loses its fertility, as the strawberry plant is a gross feeder. As strawberry plants become old new roots appear near the surface of the ground and the plants appear to raise. They

may be kept in fair condition by placing a coating of well-rotted manure on the ground between them and loosening the soil with a fork. Transplanting can be done with a garden trowel while the soil is quite damp. It is always best to cut off the dead and lower leaves before setting out the plants. If the roots are very long they should be shortened by the use of shears. It is much better to shorten roots than to double them up in planting.—*Chicago Times.*

THE VALUE OF SOILING CROPS.

All industrial and mechanical progress is marked by an economy of labor. In fact this economy and greater perfection of labor, as it is made possible and practicable by the ingenuity and inventive genius of thoughtful and enterprising men, are the springs from which this progress flows. For, as experience and ability enable a practical man to do so, he is constantly improving his methods, adding a new device, a better plan, a quicker and more effective process, here and there, until, by dividing the labor and securing greater perfection of it, the products are increased many fold with either no greater cost or a much smaller expense in proportion to the advantages gained, and thus by gradual steps, and sometimes by a happy discovery which leads to a surprising and sudden advance, have all the industries progressed so rapidly as they have done in the last twenty-five or thirty years. Let us consider just one fact which is of surpassing interest to farmers. This is the invention of the Bessemer process of making steel, by which the cost of steel rails has been reduced to about the common price of iron rails a few years ago, and their useful life has been prolonged about ten times, thus decreasing the actual cost of the rails, in effect, to one-tenth of the cost of iron rails, and the result to farmers has been to double the value of their corn, wheat, beef and other products which come from the West. Old farmers remember when it cost one bushel of corn to get another to market. But now the ruling rates of freight are lower than ever, and ten bushels of grain can be carried to the eastern markets for the price of one. In many other ways farmers are now enjoying the benefits of these improved industrial methods. But, to use a common expression, they must "follow suit" or they will be beaten after all. It is indispensable that they must at the same time cheapen their own product by the same methods, because this cheapening process referred to is general and affects every industry. Farms must be made more productive so that grain and provisions, milk, butter, cheese, fruit, etc., can be offered at the reduced prices which are unavoidable, and yet the farmers make more profit than before.

Just now we call attention to one of the greatest improvements in agricultural practice, viz., the growth and use of soiling crops as a substitute for pasturing. This consists of growing a succession of crops, as rye, clover, corn, millet, oats and peas mixed, and roots, with several others which have local advantages, for the purpose of cutting them green and feeding to stock of all kinds; horses, cattle, sheep and swine, by which the area of ground required to feed the stock may be re-

duced one-fifth, or even more; or, which is equivalent to it, the same area can be made to support five times as much stock, or even more, as before. But while this practice is most advantageous where land is high in value and labor is cheap, it is nevertheless found useful in a partial way, even where land is cheap, as in help to the always falling pasture during the hot, dry months of July and August. It is then that cows fall off in their yield, from which loss there is no recovery for the rest of the season; it is then that grazing cattle and horses suffer greatly from ties and the dry, hot weather; and the seeds of future disease are sown in the swine, to produce a costly harvest of death and loss when the later feeding on grain begins.—*N. Y. Times.*

DAIRY NOTES.

Some butter-makers would put on only half the salt the first time spreading the butter out upon the worker, and the other half at the second spreading. To make striped butter have more in the worker than can be conveniently handled at once, throw the salt in all in a bunch, and half mix it in and put it away. It will surely be striped and mottled. So it will after a second working, if it is too hurriedly done. Salt heightens the color of butter, turning it to a deep yellow, and if the salt is not brought in contact with every portion their must be white streaks.—*New England Farmer.*

The temperature of the cream should be so low that the little particles of butter will float in the buttermilk without gathering too quickly. While the butter is still in the granular form, draw off the buttermilk, and then pour in cold water, or, better still, a weak brine, or water first and then brine. Two or three washings in either clear water or brine will do the butter no harm. Now, if the butter is taken out upon the butter worker for salting there will really be no working to be done, as that term is usually understood. No more working will be required than just enough to incorporate the salt throughout the entire mass.—*Exchange.*

We have had a pretty long experience in making butter, and believe we know whereof we affirm. If very thick, stiff cream is put into any churn, but especially into one with a dash or floats that present a large surface to the cream, and the butter comes in a very short time, and is fully gathered before drawing off the buttermilk, the butter will very likely be pretty largely mixed with thick, unchurned cream and milk. And such butter can never be completely freed from its milk and cream, but they will remain in the butter more or less to its injury, according as it is to be kept or used immediately.—*Massachusetts Ploverman.*

While we do not wish to lay a straw in the way of the progress of fine dairy cow breeders, and while we admit the excellency of Jersey, Ayrshire and Holstein, we do protest against the constant revilement of our native cows. No animal on the farm is treated worse. Struggling among ragweeds in almost grassless pastures, furnishing blood for flies in the blazing heat of midsummer, the effect of wrath, hail, snow, sleet, rain and polar winds, she still survives, ever patient and returning

good for evil. If our abused native cow was treated half so well as her foreign cousin perhaps she would be as famous as they.—*Farm, Field and Fireside.*

J. N. Muncy, of the Iowa State Agricultural College, says: "The average farmer cannot afford to specially prepare his butter for a first-class market himself, unless he has a dairy of at least fifty cows. Even then there is some doubt in my mind whether he can make it pay. Any one who has had practical experience in the creamery business knows that the time required to properly handle the milk from twenty-four cows is nearly the same as that required to handle it from fifty to sixty cows." He argues that the creamery gives better returns to the farmer than he can realize from a home dairy.

We have sometimes thought that if the term "working" should be expunged from the dairyman's dictionary, it might not be a bad thing either for the butter or the butter maker. What do we work butter for? Formerly, when dash and float churns were chiefly used, and when it was the custom to gather the butter in the churn before drawing off the buttermilk, it was more important that the butter should be very thoroughly worked, both before and while the salting was being done. But, now, with churns better adapted to do the work, and with improved methods of using them, there is no necessity whatever for any second working, provided the salting is done as it should be, when the butter is taken from the churn.—*New England Farmer.*

Butter that is to printed needs less working than if it be put down in tubs, as the moulting and printing helps to work the salt in evenly. If one had been in the habit of working butter a second time after an interval of twelve or twenty-four hours, and should fear to omit the second working, it would answer the purpose just as well if the second working is done after ten minutes or half-hour as if done after a longer time. On no account should butter ever be left to harden before its second working, especially in cold weather, when it would become so hard as to require warming before re-working. A great deal of butter is injured in winter by being frozen or chilled and then heated up again for working, and also in summer by being left too long in cold wells or ice chests.—*The Dairy.*

Professor Arnold says in the *New York Tribune*: "A good many observing creamery men are becoming aware that ice in open and cold setting is the cause of a great deal of mischief to the butter, and only use it because of its great convenience. If in submerging milk injury from atmospheric condensations are pretty much avoided, the use of ice cuts off all maturity of cream, at least all in the right direction, and finally leaves it in a somewhat deteriorated condition. Were it not for the speed in creaming, and the saving of labor it occasions, it would soon go out of use, so many are becoming satisfied that butter from ice-cooled milk and cream cannot compete with that made without such chilling. From these considerations the probability is that the use of ice in the dairy will continue to become less and less in favor and less used, till the centrifuge is better perfected

and comes into general use, and creams milk while warm and obviates the necessity for cool cooling. Then ice in the dairy "must go."

Imperfectly churned butter may be improved by working in the salt and then setting it away for a few hours. If salted very heavily, as it should be in such a case, the salt will form a brine, which, at the second working, will bring away more or less of the cream and milk that should have been separated from the butter by washing while it was in the churn, and before the butter was gathered into a solid mass. But it is far better to do the churning as it should be done, and then the subsequent work will be plain and easy. Have the churn large enough so that plenty of thin, sweet milk or water can be mixed with the cream when it goes into the churn. This will sometimes retard the progress of churning, but it will result in better butter and more of it. There is always a waste of cream when the churning is done in a very short time, portions of it being washed into the buttermilk. It is such buttermilk that sometimes pays for a second churning.—*The Dairy.*

How much should butter be worked, is a question that would evidently be answered differently by different persons. It was formerly the practice, we suppose almost universally, among American butter makers, to work and salt their butter as it came from the churn, and then to set it away for twenty-four hours to cool, and for the salt to dissolve before giving it its second working. This was certainly the practice in all the dairies with which we were acquainted in our earlier days. And although there has been a great change in the practice of many makers, yet we find that there are still many others who would expect their butter to be utterly spoiled if it did not receive its second working after standing from twelve to twenty-four hours. If butter is not half worked, or rather, if it is not half salted at the time it is taken from the churn, it is certainly necessary to give it a second working. But, on the other hand, if the churning, washing and salting are all done as they should be, there will be no occasion for a second working, and such second working will really be an injury to the butter.—*Exchange.*

WHY EGGS DO NOT HATCH.

Although every possible precaution is sometimes taken to make the sitting hen as comfortable as possible the eggs often fail to hatch. The difficulties are of a character that cannot be discovered, but much depends on the conditions regarding the management of the laying hens. If a hen is very fat she will lay but few eggs, and the eggs from such a hen will often fail to hatch. When cocks are allowed to range with too many hens the vitality of the chicks is lessened and they die in the shell. Fowls that are fed under a forcing process produce weak offspring, and those that have been bred in-and-in are not to be relied upon to give good hatches or produce healthy chicks. The hen that steals her nest is generally successful, but why this is so has been a puzzle, not only to the farmers, but to the scientific men as well. One thing we know is that her eggs are never disturbed, and they are sur-

rounded only by the pure and uncontaminated atmosphere.

When we place eggs under a hen we know nothing of them, as a rule, and if they contain fertile germs it is only a matter of guess with us in selecting the nest, but the hidden hen's eggs are always impregnated. The nests should be secluded, and in a place which will be secure from the approach or intrusion of man or fowl, with the surroundings free from all impurities or odors, and every convenience afforded in the way of dusting, food and water. We handle eggs too freely, approach the nest too often, and disturb the sitting hen when she should be easy and quiet.

There are birds that abandon nests after the eggs have been disturbed, and this may partly teach us to place the sitting hen alone by herself, with freedom of action, the eggs being from good, strong hens, of which only a few have been mated with a vigorous cock. Avoid sitting hens if they are nervous or quarrelsome. Such hens are never careful and break their eggs, as well as tramping the young chicks to death. A medium-sized hen is the best, and of different breeds the Brahmas and Cochins are the most persistent sitters.—*Farm and Garden.*

DANGER IN BARBED WIRE.

In recent discussions, both at the East and in the Western States, on the use of barbed wire for farm barriers, much was said by some of the speakers on the danger to domestic animals, and especially to young horses, with which the use of this wire is attended, and cases were described where horses were badly lacerated and bled to death. Yet, notwithstanding these formidable drawbacks, so great is the saving in expense, and so efficient and durable are fences made of barbed wire, that they can not be prohibited, and farmers would not submit to any attempt to suppress their use.

The question, therefore, comes up: Is there any way to remove the objection, and to prevent the harm which barbed wire causes? We answer decidedly in the affirmative, and are surprised at the slow progress which a knowledge of the modes of prevention has made. We have used the wire for years, and never found the least difficulty of danger. There are several modes. For smooth, nearly level fields, plow a deep furrow on each side of the wire fence, or rather plow several furrows, so as to make one broad and deep one on either side, throwing as much earth with the plow as practicable towards the line of posts, and finishing the work by cleaning out by hand the ditches thus made. This work is performed at comparatively little cost, and has the three advantages of draining the line, banking against the posts so that they need not be set so deep, and making a visible barrier which will induce horses to check their speed and stop before they reach the fence. They will not pitch heedlessly into a ditch and against a bank. They are always brought up before they reach the line. Another advantage is that the ditch and bank combined are as good as two bottom boards, and a smaller number of wires are needed to complete the fence above.

Another mode, where there are plenty of scattered or cobble stone over the adjacent

fields, is to make with them a low flat wall, say about two feet high; set the posts in the wall, and attach the barbed wire to them. The wall becomes a visible barrier, and will repel the approach of the animals, for they have a special dislike to step on a mass of small stones.

A third mode is to place two or three wires inside of a hedge, the branches and stems of which will hold the wires in place as the hedge increases in growth. A poor, thin hedge, of small growers, is thus made into an efficient barrier, and the hedge is sufficiently visible. Strong growing hedge plants are not wanted for this purpose, for it would require too much labor to keep them cut into proper shape. There are other modes for removing the danger, but some of the preceding may be employed in nearly all cases, and the fences will be comparatively cheap in construction.—*Country Gentleman.*

EXPERIMENTS IN POTATO PLANTING.

I received a circular from Dr. E. L. Sturtevant and tried some potato experiments according to it and also others. I planted in drills 50 feet long, 3 feet apart and pieces 1 foot apart in the drills, with the following results: Quarters, 2 in a place, yielded 37 pounds of large potatoes and 3 pounds of small ones, inferior both in size and shape. Single eyes, cut deep, 2 in a place, yielded 27 pounds large and 2 pounds small. Single eyes cut very shallow, 1 in a place, yielded 12 pounds large and 2½ small. Single eyes, cut from stem end, 1 in a place, yielded 16 pounds large and 1 pound small. Single eyes, cut from seed end, 1 in a place, yielded 15½ pounds large and 3 pounds small. Single eyes, cut from middle, 1 in a place, yielded 23 pounds large and 1 pound small, nearly all large and smooth, which shows that eyes cut from the middle of potatoes are better for seed. These experiments were not satisfactory, as the season was so very wet that water stood between the rows some of the time, making it impossible to cultivate them thoroughly and causing them to rot badly. I weighed only the sound potatoes. Two rows side by side planted and cultivated exactly alike differed five pounds in yield, showing that one or two experiments are not conclusive. White Elephant—an excellent variety—was used in the above experiments. My method of raising potatoes is to thoroughly prepare the ground, then make furrows four or five inches deep and three feet apart, dropping pieces eight to twelve inches apart; cut to single eyes from good-sized smooth potatoes, and cover with an Aeme harrow or wooden clod-crusher. About the time they begin to come up I harrow them lengthwise of the rows with a spike-toothed harrow—slanting teeth would be better—and again about a week after. Then cultivate about once a week until in full bloom; finishing with shovel, plow and hoe. I have never tried the flat culture. To make a clod-crusher take six or eight four-inch hard wood scantlings six feet long, six feet from each end, bore holes cornerwise through them, tie a knot in one end of a rope and pass the other end through all the holes in one end of the scantlings and back through the holes in the other end, leaving a loop in the middle of the rope

to pieces of. Or make flat holes and insert bits of flat spring steel; lay a piece of board on top to ride on. This is much better than a roller to pulverize the lumps, and cover clover, grass, millet and other small seeds, leaving the ground smooth and even for the reaper and mower.—*Elmira Husbandman.*

HANDY REMEDIES

The following remedies for many simple ailments we find recommended in *Hall's Journal of Health*. And while the remedies may not be new to many of our readers, they will be found useful to all. We now publish them that they may be at hand for ready reference.

Half a teaspoonful of common table salt dissolved in a little cold water and drank will instantly relieve "heartburn" or dyspepsia. If taken every morning before breakfast, increasing the quantity gradually to a teaspoonful of salt, and a tumbler of water, it will in a few days cure any ordinary case of dyspepsia, at the same time due attention is paid to the diet. There is no better remedy than the above for constipation. As a gargle for sore throat it is equal to chlorate of potash and is entirely safe. It may be used as often as desired, and if a little is swallowed each time, it will have a beneficial effect on the throat by cleansing it and allaying the irritation. In doses of one to four teaspoonfuls in half a pint to a pint of tepid water it acts promptly as an emetic, and, in cases of poisoning, is always on hand. It is an excellent remedy for bites and stings of insects. It is a valuable astringent in hemorrhages, particularly for bleeding after the extracting of teeth. It has both cleansing and healing properties, and is therefore a most excellent application for superficial ulcerations. Mustard is another valuable remedy. No family should be without it. Two or three teaspoonfuls of ground mustard stirred into half a pint of water acts as an emetic very promptly, and is milder and easier to take than salt and water. Equal parts of ground mustard and flour or meal made into a paste with warm water and spread on a thin piece of muslin, with another piece of muslin laid over it, forms the indispensable "mustard plaster." It is almost a specific for colic when applied for a few minutes over the "pit of the stomach." For all internal pains and congestions there is no remedy of such general utility. It acts as a counter-irritant by drawing the blood to the surface; hence in severe cases of croup a small mustard plaster should be applied to the back of the child's neck. The same treatment will relieve almost any case of headache. A mustard plaster should be moved about over the spot to be acted upon, for if left in one place it is liable to blister. A mustard plaster acts as well when at considerable distance from the affected part. An excellent substitute for mustard plasters is what is known as "mustard leaves." They come a dozen in a box, and are about four by five inches. They are perfectly dry and will keep for a long time. For use it is only necessary to dip one in a dish of water for a minute and then apply it. Common baking soda is the best of all remedies in cases of scalds and burns. It may be used on the surface of the burned place either dry or wet. When applied promptly the sense of relief is magical.

It seems to withdraw the heat and with it the pain, and the healing process soon commences. It is the best application for eruptions caused by poisonous ivy and other poisonous plants, as also for bites and stings of insects. Owing to colds, over-fatigue, anxiety and various other causes, the urine is often scanty, highly colored, and more or less loaded with phosphates which settle to the bottom of the vessel on cooling. As much soda as can be dipped up with a ten cent piece, dissolved in half a glass of cold water and drunk every three hours, will soon remedy the trouble.

THE DISAPPEARANCE OF GAME.

The swift growth of our cities is not nearly as unparalleled as the rapid disappearance of our game animals. One hundred years ago Eastern North America was the finest game country in the world. "This valley is a hunter's paradise," says Colonel Boone in his account of the expedition to the mouth of the Kentucky River. "Our dogs started three troops of deer in less than half an hour, on the river we saw tracks of elk, bears and buffalo, and the thickets along the slope were full of turkeys and mountain-pleasants. From the cliffs above the junction our guide showed us the wigwams of the Miamis. About eight miles to the northwest we could see the smoke of their camp-fires rising from the foot of a rocky bluff, but the hill country on the east and the great plains in the west, north and northwest resembled a boundless ocean of undulating woodlands."

"Northwest of the Blue Ridge" buffaloes grazed in countless herds. During the heat of the midsummer months they used to retreat to the highlands, and followed the ridges in the southward migration as the approach of winter gradually crowned the heights with snow. Along the backbones of all the main chains of the smoken Alleghenies these trails can still be distinctly traced for hundreds of miles. "Buffalo Springs," Buffalo Gap" and scores of similar names still attest the former presence of the American bison in localities that are now nearly 20,000 miles from the next buffalo range. The centre of our buffalo population is moving northwest at an alarming rate. Herds, in the old-time sense of the word, can now be found only in British North America and here and there along the frontier of our Northwestern Territory. In cold winters small troops of fifteen or twenty are seen in the Texas Panhandle, in Western Utah, and in the valley of the Upper Arkansas, but nowhere this side of the Mississippi. Their days are numbered. They can not hide, and their defensive weapons are useless against mountain riflemen. Pot-hunters follow them to their far, northern retreats; the International Railroad will soon carry a swarm of sportsmen to their West Mexican reservations, and in fifty years from now their happy pasture grounds will probably be reduced to the inclosed grass-plots of a few zoological gardens.

Panthers are still found in twenty-six or twenty-seven States, but chiefly at the two opposite ends of our territory—or Florida and Oregon. In the southern Alleghenies they are still frequent enough to make the Government bounty a source of income to the hunters of several highland counties. Wolves

still defy civilization in some of the larger prairie States, and in the wild border country between North Carolina and East Tennessee. But, unlike the panthers, they do not confine themselves to a special locality. Hunger makes them peripatetic, and in cold winters their occasional visits can be looked for in almost any mountain valley between Southern Kentucky and Alabama.

FOOT AND MOUTH DISEASE.

From various sources we have received reports within the last few weeks of the appearance in this country of what is called the "foot and mouth disease," or aphthous fever. It is not at all strange that this disease should be imported, inasmuch as we are constantly receiving cattle, sheep, and other domestic animals from countries where it has existed for many years; but for some unknown reason this scourge has never found a permanent lodgment on the soil of the United States. Some fourteen years ago it appeared among the cattle of Massachusetts, and several hundred were attacked; but it soon disappeared, and little has been heard of it until quite recently.

We learn from the *Maine Farmer* of February 28, that this disease has for the first time appeared in Maine, having been introduced there by a herd of Hereford cattle, imported into Portland on February 2, on board the English steamer Ontario of the Dominion line. It is quite natural that the farmers of Maine should feel somewhat alarmed at the appearance of this disease in such close proximity to their private herds, and we have no doubt the requisite precautions will be taken to prevent its dissemination to other points. We also have reports of the appearance of this disease in one of the Western States, which, if true, does not speak well for those who have charge of the quarantine yards at the ports where imported animals are received and examined before being allowed to go inland. We certainly cannot be too cautious in this matter of preventing the introduction of infectious and contagious diseases of animals, and we could far better afford to close our ports to all kinds of domestic animals than to introduce a disease that cannot be readily stamped out without considerable loss or expense. We have already as good animals to breed from as can be found in any European country, and there is really no need of ever importing another one; and we are not quite certain that it would not be good policy to shut the gates against live stock from all parts of the world.

This aphthous fever, like all other animal plagues follows in the track of commerce, and has appeared in almost every cattle-raising country in the world; and while the United States have thus far been exceedingly fortunate in escaping any serious loss from it, we cannot expect that this state of affairs will continue for all time, if animals are permitted to come here from infected districts abroad.

The virus of this disease may be scattered in many ways, and the poison transmitted by direct contact or through the medium of roads, pastures, food, litter manure, drinking troughs, the clothes of the persons attending the animals, and the ships and cars in which

stock is taken from one country or locality to another. One European authority states that he had known the virus to be preserved a long time in the forage and water of a stable that had been occupied by a diseased animal.

The disease is not confined to neat cattle, but attacks all cloven-footed animals, and from these is communicated to all warm-blooded animals, even to man. The period of incubation is usually from two to six days, and Dr. James Law describes the symptoms as follows: "Roughness of the coat or shivering; increased temperature; dry muzzle; hot red mouth, teats, and interdigital spaces; lameness; inclination to lie down, and shrinking from the hand in milking. The second or third day, blisters arise on any part of the whole interior of the mouth, one-half inch across. Saliva diverts from the mouth, collecting in froth around the lips, and a loud smacking is made with the lips and tongue." Swine clamp the jaws, and both sheep and swine suffer much in their feet, often losing the hoofs.

Nothing is really known in regard to the causes which develop this disease, but it is believed to always proceed from a particle of virus transmitted from some diseased animal. It is highly contagious and infectious, and must be dealt with accordingly. It usually runs its course in from ten to fifteen days, and, if the animals receive proper care, very few need be lost. The usual treatment is to give laxative medicines, and astringent solutions for washing the mouth. Dr. Law recommends Epsom salts for physic; and for a mouth wash, borax and tincture of myrrh, one ounce each; water one quart; or carbolic acid, one drachm; honey, two ounces; vinegar, one pint; water, one pint. A lotion for the teats may be made of carbolic acid, one-half drachm, glycerine ten ounces. For dressing the sores on the feet use oil of vitrol, one ounce, diluted with four ounces of water, and then apply with a feather. The feet may also be tied up with tar bandages, or the sores smeared with warm tar. The strength of the animal should be kept up by giving stimulating food, such as oatmeal gruel, linseed tea and good ale. In fact, careful attention on to the wants of the animal in the way of proper food and drinks is fully as essential as medicines. One attack of this disease does not insure the animal against another.

To prevent the spread of the disease all infected animals should be secluded from all others, and the attendants must be very careful or they will carry the virus in their boots or clothes from the sick to the well animals. The milk of the cows with the disease should be buried, and all the manure in the same way or burned. All troughs, pails and other utensils used in the stables of the affected animals should be carefully disinfected or destroyed, as they are no longer needed for the purpose which they have been used.—*N. Y. Soc.*

THE SPEED OF A FLYING DUCK.

It may be interesting to the reader to know the speed at which many ducks fly down wind:

Mallard, from 45 to 50 miles an hour.

Black duck, from 45 to 50 miles an hour.

Pintail, from 50 to 60 miles an hour.

Widgeon, from 65 to 66 miles an hour.

Wood duck, from 55 to 60 miles an hour.

Gadwall, from 60 to 70 miles an hour.

Redhead, from 80 to 90 miles an hour.

Blue wingtail, from 80 to 100 miles an hour.

Green wingtail, from 80 to 106 miles an hour.

Broadbill, from 85 to 110 miles an hour.

Canvas back, from 85 to 120 miles an hour.

Wild geese, from 80 to 90 miles an hour.

For the above table I am indebted to a Mr. D. W. Cross, an old duck shooter and a careful student of the habits of water fowl. I have not the slightest hesitancy in believing him right, for the experience of others with whom I have shot ducks, coupled with my own more than corroborates the assertions. When I have held ahead of a string of blue bills, say at least ten feet and kill the fourth or fifth duck in the string, I have been strongly impressed that the speed they were flying was like the traditional greased lightning, remembering that the charge of shot left my gun (No. 4 shot, say,) with an initial velocity of 1,800 to 2,000 feet per second. It will be seen that long experience and good judgment is necessary to know where to hold the gun in order to become a good duck shot.—*Pittsburg Chronicle*.

MY EIGHT-ACRE FARMING

Eight acres of sandy loam, light, fine and level, all in one piece near the house and barn; no stone, no fences, no waste, every foot tillable, no time lost in going to and from work; horse, wagons, harness and tools, last indefinitely, having the least wear and tear possible. Having a good market near for vegetables and a good one for milk at the door, I raise both, and so one thing helps another on land and in market. Having the land and market and the crops to be raised decided upon, the course is open to success, if the land is worked right. A small farm is no disgrace; it takes more brains to work a small than a large one and get a living from it.

My father said to his son more than a score of years ago:

"You have too little land; no man yet ever got rich from his own labor; do not spend your time trading around in a half-bushel measure; sell out; get more land and do a business that amounts to something."

Very good advice to a man with money to pay for a big farm. But all cannot have big farms; a place in this world is left and must be filled by the small landholder who can only buy a small tract, but who has the sagacity to see that it will answer his purpose in the line of agriculture. Land there is, and plenty of it, for all; but it is only the right use of it which brings success.

A neighbor of mine thrives on his farm of twenty acres, makes money and lends it to his neighbors who have more land than they own. He was warned he would starve on his barren land by those who are now borrowing his money. Another neighbor finds sixteen acres of the best of land too little to furnish three persons a living. I have received letters asking how it is that I raise so much, on so small a surface. To all inquirers I say, "Come and see." We are in operation summer and winter, and always busy. Just now we have three cows; sell milk at four cents per quart at the door; market \$10 worth of vegetables

a week; run a small hot-house, and a month later shall have hotbeds in operation. Not much cost for help either; I have in the family a boy fifteen years old; he and I do all the work this winter and have time to play.

Do I raise all I feed the cows? No. Why should I. With the best sweet-corn fodder \$6 per ton, delivered; bran, \$20 per ton, and cottonseed and corn meal cheap at retail; I can buy feed cheaper than I can raise it. I house for winter use from eight to ten tons of hay, etc., from my four acres in grass; but that is not enough. I have manure, all of which goes back to the garden; and the crops are good, as you can well believe. There is no time of leisure. Every month of the year is full of work which pays, and yet we have time to rest. We rise at sunrise and stop work at sunset all the year round; no haste; but just enough pressure of work to keep one alert, active, and moving steadily on.—*W. H. Ball, West Springfield, Mass.*

SPARE THE TOADS.

There is no better abused, and probably no more useful creature in the garden and upon the farm than the toad. The apt simile, "like a toad under a harrow," tells the story of his wrongs. And now that our harrows are armed with steel teeth, and are supplemented with clod crushers and cultivators of various types for comminuting the soil, the sorrows of the toad are intensified, and he is threatened with extinction in all cultivated fields. Stay thy hand from slaughter, tiller of the soil. The toad is as useful in his place as the implements of tillage you drive over his back so thoughtlessly. "The jewel in his head" is not there, but in his capacious stomach, that always has room in it for one more bug, one more worm, that destroys the food of man. Watch his habits for a day, and observe the lightning thrusts of his tongue as he scoops in your enemies, and you will have a better appreciation of his work, and of his place in good husbandry. If your garden is without toads you can afford to purchase them for stock. They pay good dividends, as surely as superphosphate.—*American Agriculturist*.

HOW TO COOK AN OLD HEN.

I may, however, mention an experiment that I made lately. I kill a superannuated hen—more than six years old, but otherwise in very good condition. Cooked in the ordinary way she would have been neatbly tough. Instead of being thus cooked, she was gently stewed about four hours. I can not guarantee to the maintenance of the theoretical temperature, having suspicion of same simmering. After this she was left in the water until it cooled, and on the following day was roasted in the usual manner, i. e., in a roasting oven. The result was excellent; as tender as a full-grown chicken roasted in the ordinary way, and of quite equal flavor, in spite of the very good broth obtained by the preliminary stewing. This surprised me. I anticipated the softening of the tendons and ligaments, but supposed that the extraction of the juices would have spoiled the flavor. It must have diluted it, and that so much remained was probably due to the fact that an old fowl is more fully flavored than a young chicken. The usual farmhouse method of

cooking old hens is to stew them simply; the rule in the midlands being one hour in the pot for every year of age. The feature of the above experiment was the supplementary roasting. As the haying season is now coming to an end, old hens will soon be a drug in the market, and those among my readers who have not a hen-roost of their own will oblige their poultryers by ordering a hen that is warranted to be four years old or upward. If he deals fairly he will supply a specimen upon which they may repeat my experiment, very cheaply. It offers the double economy of utilizing a nearly waste product and obtaining chicken broth and roast fowl simultaneously.—*Popular Science Monthly*.

THE USE OF A DRY WELL.

There are certain household wastes which can not be fed to the poultry or pigs, cannot be burned, and will not decay on the compost heap. These, in a country place, where the cart of the city scavenger is unknown, will accumulate. The articles we refer to are old fire cans; tinware, past mending; saucers, which a crack has rendered useless; old bottles and leaky stoneware jugs and jars. These and others will accumulate, and a proper regard for neatness forbids following a too common custom of throwing them into the road. If a rubbish heap is established in an out of the way place, enterprising boys will find it and scatter its accumulations. There is but one effective way to dispose of rubbish of this description—bury it. A dry well is a useful adjunct to every neatly kept country place, be it large or small. In an out of the way corner dig a well or pit, cover it with pieces of plank too heavy for children to remove, and drop into this all kinds of indestructible rubbish. When this well, which need be but a few feet deep, is partly filled, dig another near by, using the earth taken out to cover the rubbish in well number one. This effectually disposes of the unsightly accumulations of rubbish, while the amount of labor required is not large, and the incidental drainage afforded may be beneficial.—*American Agriculturist*.

PRESERVING SALT MEAT.

Much of the corned beef and salt pork put up by farmers becomes tainted or completely spoiled during the summer and fall. The injury is not caused by using too small an amount of salt. As a rule, much more salt is employed than is necessary to preserve the meat. Sometimes it contains impurities that cause the meat to contract a bad flavor. Pure salt should be employed for preserving meat and dry products. It costs but little more than that which is impure, and it is more satisfactory in all respects. Meat packed in a barrel and covered with brine becomes tainted or spoiled in consequence of small portions of it or some of the fat or blood it contains coming to the top of the brine. The air comes in contact with it there, and decomposition takes place. The products of the decomposition of animal substances always have an unpleasant taste and smell, and these in the case of meat in a barrel are communicated to the brine and from thence to the meat. Meat packed in brine should be cut in pieces with a very sharp knife. This

will leave the edge smooth. After it has been for a few days in the brine the latter should be poured off and boiled. The boiling will cause all the impurities to rise to the surface while the blood will be coagulated. These substances should then be skimmed off, and when the brine is cold it can be returned to the barrel. If the brine does not continue pure the operation of boiling should be repeated. Special pains should be taken to keep the meat under the brine at all times. A perforated top or false cover, or a frame work, should rest on the meat and be weighted down by a clean stone. If these precautions are employed the liability of spoiling will be very slight.

IN THE HAY AND HARVEST FIELD.

People drink too copiously of ice-cold water, and every summer the list of deaths from this cause is a long one. Excessive drinking of ice-cold water becomes as much of a habit as some other forms of drinking. If ice-cold water be used to reduce the temperature of ordinary well-water, "half-and-half," it will be found to quench thirst just as readily as when taken into the stomach at the melting point of ice (32°), and there will be no danger of sunstroke and "sudden prostration in the hay field." Still better than ice-water is some prepared drink, to be taken in moderate quantities. Nothing is better for those who work in the hay and harvest field than the old-fashioned "Switchell." This is water, sweetened with molasses, to which are added vinegar and ground ginger. We do not know of any definite proportions, as the ingredients are usually mixed "according to the taste." It is a most refreshing draught, and if cooled by adding a moderate quantity of ice, the ginger prevents any unpleasant effects. Another capital drink for workmen in the field is "Tea Punch." Make strong tea, sweeten it, and then squeeze into it the juice of one more lemons. This may also be cooled by adding ice in moderate quantities, and those who like tea at all will prefer it to any other harvest drink. Strong coffee, with sugar and milk, placed on ice until well cooled, is an excellent drink for the field.—*American Agriculturist*.

IMPROVING FARM HOUSES.

It is a source of great satisfaction to notice as we have within the last half dozen years the improvement which has been making in the appearance of farm dwellings. It is being done in various ways and after various plans. It seems that every one, no matter what the exact measure of his means may be, is doing something in beautifying his home. It makes no difference what is the particular nature of it, the aim is to add to its attractiveness, and in this effort it has the support and assistance of the wife and daughters, whose share in the work is given freely and ungrudgingly, and all equally enjoy the happy result. How much, for instance, does a neatly fenced-in front yard, filled with flowers of various kinds, with trellises for climbing vines, add to the general appearance? Every house should have a comfortable porch or piazza, which is a protection against sun and rain, and in summer evenings, when the entire family is gathered there, it proves to be the best room in the house. Every dwelling, however humble, should also have a little

parlor, nicely furnished, though it may take years to complete it, which should be opened daily whether used or not. It is the pride of the good wife and daughters in increasing its neatness and beauty, as well as in receiving in it on special occasions their neighbors and friends. In a word, to increase the attractiveness of one's home is a real labor of love, and it can be done at such times when other duties are not pressing, while the expense of it is so trifling as not to be felt.—*Germania Telegraph*.

IVY POISONING.

The "Poison Ivy," also called "Poison Oak," and in some localities known as "Marry-cure," is often the cause of great distress. The vine is abundant all over the country, one form being low, running along on banks and rambling over stone walls. Another form climbs the highest trees, clinging to the bark by its many rootlets. It is often confounded with the Virginia Creeper; indeed, we have known it to be planted as an ornamental vine, it having been mistaken for that. The two are readily told apart, the Virginia Creeper having its dark-green, shiny leaves five-parted, while the light-green leaves of the poison vine are three-parted. The Poison Ivy is so very abundant, that were all equally susceptible to its influence, we should hear much more of its effects than we do at the present. With many the poison produces only a slight eruption on the skin and an intense itching. Others are more seriously affected, and the face swells up to such an extent that the features are hardly visible. Nearly every locality has its popular remedies for the poison, and new ones are frequently proposed. As a general thing, most cases are relieved by keeping the bowels open by the use of salts, and washing the eruptions with a strong solution of sugar of lead. The latest remedy, which is now going the rounds, is to bathe the affected parts with lime water, applied as hot as it can be borne. This is simple, the remedy is usually at hand, and is worth trying, as other alkaline washes have been found useful. No harm can result.—*American Agriculturist*.

A DISH OF STRAWBERRIES.

As it is getting late in the season and we feel in earnest about this subject we refer to it for the last time now, for some months at least, and bring forward to assist us the services and experience of a correspondent of the *Country Gentleman* as a sort of closing argument. This is the way he puts it:

I wish I could induce every farmer reader of this paper who does not grow strawberries, to appreciate the value of a strawberry patch. I believe there is no fruit which combines so many excellent qualities. Delicious, healthful, comparatively free from insect pests, and easily produced in all kinds of soil—what other luxury so cheap and yet so good? It is perhaps creditable to farmers that the use of strawberries is rapidly growing popular among them; yet it seems unjust that any person having a patch of land should deprive himself and family of a full allowance of this delicious fruit during its fruiting season.

The chief reason that strawberries are not more generally grown by farmers, is that the term "strawberry bed" often signifies some-

thing which the ordinary, pushing farmer cannot afford. The "strawberry bed" is associated with the flower garden, the lawn and the grape-ry, rather than the cabbage patch and the onion bed. In other words, most farmers who do not raise strawberries for family use believe that their production requires a vast amount of skill, patience and labor more than they can afford. This is by no means the case. Every person who can have a cabbage patch can also have a strawberry patch, and the latter requires no more brains, patience or labor than the former. Indeed those who are accustomed to growing strawberries in plenty for home use would drop the cabbage patch rather than the strawberry patch.

The modern strawberry bed, instead of meaning a very small, raised plat of ground in the garden among the flowers and shrubbery, as it often existed in old fashioned gardens, signifies a good-sized piece of ground where the strawberry plants are set out and cultivated with a horse as we cultivate the corn and cabbages. As labor is the chief item of expense in growing garden products, it is important to practice a cheap system of growing strawberries. My system—the chief merit of which is its economy and cheapness—is as follows:

I set out a strawberry patch every year in the spring as early as practicable, usually during April. I do not expect to obtain but one crop from a planting, although occasionally the plants are left to bear two crops. The advantages of this "one crop plan" are that the first crop is nearly always the best, and that to preserve a bed to produce more than one crop requires too much labor in order to thoroughly clean the soil of grass and weeds, and loosen the soil between the rows and about the plants. By setting out a patch every spring, and plowing down another one every after it has fruited, a fresh bed is always ready to produce a full crop of fine, large berries, and the expense for weeding and cultivating is trifling.

I plant in rows 3 feet apart, and the plants are one foot apart in the row. I keep the soil clean, loose and open by frequent cultivation and the use of the hoe. No runners are cut, but they are allowed to take root along the line of the rows. Late in the season the cultivator teeth are narrowed up, and the runners allowed to form matted rows a foot or eighteen inches wide. Late in autumn after the ground freezes hard enough to hold up a team, the entire bed is covered over with clean wheat or rye straw. My rule is to cover just enough to hide the soil and plants from view. In the spring, after the frost is out of the ground, the straw covering is raked into a light winrow between each two rows of plants, and there left to remain to keep down grass and weeds, and prevent the soil from becoming dry. This is all the labor required before the fruit ripens, unless it be to pass over the bed and pull out the few weeds which may make their appearance. I believe this to be the best system for those who have plenty of land, and on heavy soils.

Mixed olives are relished by many, and are considered a delectable addition to salads of any kind.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The Lancaster county agricultural and horticultural society held a stated meeting in their room in city hall, Monday afternoon, May 5th, 1884. The following named members were present:

John C. Liville, Gap; John H. Landis, Millersville; M. D. Kendrick, Cresson; Dr. J. P. Wickersham, city; Henry M. Engle, Marietta; F. H. Diefenderfer, city; James Wood, Little Britain; Levi S. Reist, Manheim; J. M. Johnston, city; C. S. Hunsicker, Manheim township; Joseph F. Witmer, Paradise; Wm. H. Brosius, Drumore; J. R. Buckwalter, Salisbury; Samuel Hershey, Salisbury; Israel L. Landis, city; Eph. S. Hoover, Manheim; Peter S. Reist-Litz, Salomon Gregg, Drumore; S. P. Eby, city.

The President being absent, Vice President Engle was called to the chair.

The County Institute.

Dr. J. P. Wickersham, from the committee appointed at a former meeting to make arrangements for a two days county institute of farmers to be held in the court house on Wednesday and Thursday, June 4th and 5th, reported that the prospects of having a large and interesting institute were very flattering. He had corresponded with a number of the most eminent agriculturists in the state and had received from them assurances that they would be present. Governor Pattison had written that he would be present on the second day of the institute. Victor Piollet, who stands at the head of the farming interests in the northern section of the state, would be present on the evening of the first day, and perhaps on the second. President Atherton, of the Agricultural college, will be here and address the institute. Prof. Jordan will discourse on fertilizers, a subject of which he is a thorough master. Dr. Loring, the chief of the agricultural department, at Washington will positively be here, and address the institute. Ellwood Harvey, than whom there is no higher authority, will deliver one or more lectures on the horse; and Willis P. Bazzard, who knows as much about cows as Prof. Harvey does about horses, will speak on that important subject. Prof. Heiges, of Shippensburg normal school, will lecture on fruits, flowers, shrubbery or kindred subjects. Thomas J. Edge, of the state agricultural department, has also promised to be present, together with many of our most learned local agriculturists. The committee had also been in correspondence with the railroad companies, and both the Pennsylvania and Reading companies had agreed to issue excursion tickets at low rates, to those desiring to attend the institute.

J. C. Liville, from the sub-committee, reported that he had replies from a number of local essayists that they would be present—among others T. Blackburn, of the Fulton Farmers' Club; J. M. Franz, of Lancaster township; Johnson Miller, of Warwick; Mr. Cooper, who will speak of "farmers' wives;" T. W. Kinzer, on agriculture in the schools, and Dr. Wickersham on "How to keep the boys on the farm."

Dr. Wickersham said there would be no lack of able speakers, but the question is, shall there be an attendance of Lancaster county farmers worthy of the occasion? We have a reputation of being the greatest agricultural people in the country and the eminent speakers who have been announced are coming to the institute as a compliment to the county. It is for us to see that they are worthy recipients. He hoped the townships would vie with each other as to which shall send the largest delegation to the institute. The court house has been secured by the committee and he would not be satisfied unless it be filled to overflowing.

Several members promised large delegations from their respective townships, and James Wood, of Little Britain, wanted to know whether the institute was to be exclusively for the "lords of creation," or whether the ladies also were to be invited. Chair-

man Engle replied that "the queens of creation" were invited and were expected to attend.

Crop Reports.

Several members from different sections of the county reported the crop prospects to be excellent. The winter wheat never looked better: there is scarcely a poor field to be seen anywhere; the grass is in excellent condition; the peach trees are in better condition than was supposed a month ago, and there may be a fair crop. Apples, cherries and pears promise an extraordinary crop; grapes are budding out nicely; strawberries, raspberries, blackberries and other small fruits are in good condition for a heavy yield. Tobacco plants are coming on finely, though the season is backward; most of the farmers have sown Havana seed, and probably two-thirds of the crop will be of that variety; seven-tenths of the tobacco crop of '83 is sold, and most of the fat cattle are also sold and shipped. The only drawbacks to the favorable reports are that the mice during the winter girdled many young trees and hedges, some of the clover fields do not look well, and the ground is found to be unusually hard to plow. The rainfall for March was a little over 4½ inches and for April 3 inches.

Essay on Wages.

C. L. Hunsicker read the following essay:

Wages has been defined as a compensation given for labor.

In tracing the history of the country, in reference to high or low prices paid for labor, the industry of the people, styles of living, resources, population and wealth, its successful agriculture, manufactures, commercial operations, mining, education, the construction of common roads, spanning rivers with viaducts, excavating canals, and building rail roads, its natural advantages, soil, climate, mill streams, great lakes, navigable rivers, the ocean, easy facilities of travel, low fares and freights, its cities, towns, public buildings, farm houses and barns, the thrift and comfort of the people in dwellings, furniture, clothing and food must be taken into consideration.

The ingenuity and industry of the inhabitants, its laws and customs, all have an important bearing upon the price of commodities and the wages of labor. The price paid for labor depends very much upon the number of laborers, and the demand for labor in a country. The expense of living, rents and taxes, often fare so heavy, with a few exceptions in the old world, that the day laborer, with the scanty wages allowed to him, is in no condition of prosperity or even of comfort. In those countries like China, where rice is the chief article of food, wages are extremely low, and living comparatively poor, the tea gatherers making but a few cents for a day's labor; the same is true of other branches of industry in China and Hindoostan.

Wages in our country are twice those of Belgium, Denmark, France and England; three times those of Germany, Italy and Spain; four times those of Holland.

The prices of the necessities of life are lower in America than in Europe. The peasantry in the old world, out of absolute necessity, are restrained to live economically and poor. Sixty cents a day is considered good wages for a workman in any part of the European countries, except Great Britain, where wages are somewhat higher. In the Tyrol silk region and in Italy they often do not get more than ten cents. In the country in Germany ten cents is the common pay. Women there often get but five cents for a day's labor. In Sweden men work from 4 o'clock in the morning, till 9 o'clock in the evening and do not get any more. During the war with France, many poor women in Berlin were hired to knit stockings for soldiers for five cents a day; barbers in Berlin get five cents for hair-cutting and two and two and one-half cents for shaving; servants at hotels, \$3 \$8 per month; servant girls, in private families, often get but \$10 a year. Sometimes these classes can not get work at any price. The immense amount of capital of England,

France and Spain, concentrated or held by a comparatively few in those countries of large population, affords them very great advantages to employ labor at low figures over new and sparsely settled countries whose inhabitants have not great wealth to operate successfully large manufacturing establishments.

Of the working classes of England, none has been so much oppressed, or are in so low a condition as the agricultural laborer. For five centuries, up to 1834, the magistrates in quarter sessions fixed the rates of wages. They got only what the farmers or employers of the peasants dictated, and that was barely sufficient to keep body and soul together. The bread riots in England of former days, were the result of high prices of food, and rents, and the forcing down of the prices of labor.

The prosperity of the United States has been made up by the good prices paid for labor. It is employment that has made us what we are. Here men go to work, because idleness is considered a crime, and the chance presented to the workman of rising in the community and standing on an equality with his fellow citizens very encouraging.

A question is frequently asked, Were former times better than they are at present? This is much easier asked than answered; but from all the information that can be collected from history and experience, I should say that the present time is big with favorable results, notwithstanding occasional strikes among laborers for higher wages in our country.

In spite of what is said of the good old times, there have been vast improvements in the diversified industries of our country in the style of living, the price of commodities, and the rate of wages.

It is true that the fluctuation of prices of commodities and the rate of wages of labor, are very great under different times and circumstances.

The miserable occupants of certain tenement houses in large cities, who scarcely earn enough to pay rent and buy food to sustain life, barring all comfort of room, furniture and clothing, eke out a precarious existence, yet in our country, very few persons die of actual starvation.

Good and Bad Butter.

"Do the farmers of Lancaster county make good butter? If not, why not?" The question was discussed at considerable length by Messrs. Hunsicker, Wickersham, Wood, Witmer and Engle, and the conclusion reached was that while some very excellent butter is made in Lancaster county a great deal more is of inferior quality. This is owing to several causes, of which poor cows, dirty stables, improper feed, bad management and unthrift managers are the most prominent. Other causes are that we are too far from the Philadelphia market to compete with the Chester, Delaware and Bucks gilt edge butter makers; our country store keepers who handle three-fourths of all the butter made do not discriminate between that which is good and that which is bad, but buy and sell good and bad alike at the same price. The remedy is to secure the best breed of butter making cows, treat them with care and kindness, feed them with the best kind of food, and prevent them from eating garlic, hemlock, mouldy vegetables or anything else that will taint the butter with an unpleasant flavor, use the utmost cleanliness in milking the cows, churn the cream before it stands long enough to be come mouldy, work all the butter milk out of the butter, use no artificial coloring matter, and market the butter in tidy and presentable shape. While creamery butter was acknowledged to be far better than most of that manufactured by farmers, one or two of the speakers maintained that dairy butter when properly made was better than the creamery. Dr. Wickersham said the best butter he ever ate was in Denmark, where the cow stables are kept as tidy as our kitchens, and the cows as neat as the milkmaids. The Danes ship their butter to England and even to India, and he ventured to state that they would ere long ship it to the United States. He thought one reason for the superiority of their butter was the luscious juicy grasses abounding in that

country. In answer to a question Dr. Wickersham said that the cattle in the southern part of Denmark were the Holsteins, while in the northern parts the Jurland cow is bred—a smaller animal, not unlike the Jerseys.

On motion of Mr. Dillenderfer it was resolved to hold no meeting on Monday, the second of June, as the farmers' institute will be held on the Wednesday and Thursday following.

Adjourned.

The Farmers' Institute.

The Farmers' Institute to be held in the Court-house under the management of a committee of the Lancaster County Agricultural and Horticultural Society, will open at 10 o'clock Wednesday morning, June 4th, and close on Thursday evening.

Lectures and addresses on topics relating to practical farming will be delivered by the following distinguished gentlemen, all of whom have positively promised to be present: Gov. Robert E. Pattison, Dr. George B. Loring, United States Commissioner of Agriculture; Colonel V. E. Piolet, of Bradford county; Dr. Ellwood Harvey, of Chester; Willis P. Hazard, Esq., of West Chester; Dr. George W. Atherton, President State College; Thos. J. Edge, Secretary of the State Board of Agriculture; Dr. James Calder, Lecturer for the State Grange; Prof. Samuel B. Heiges, of Shippensburg; Prof. W. H. Jordan, Agricultural Chemist of the State College.

Of these, Col. Piolet will speak on "The Present and the Past, as they relate to American Farming"; Dr. Harvey, "The Horse, including his Proper Treatment in respect to Food, Drink, Stabling, Blanketing, Breaking, Teaching, etc.;" Mr. Hazard, "High-priced Cows, the cause of High Prices, will they pay Farmers to Own, of what Breeds, and the Principles of Selecting Such;" President Atherton, "Agricultural Education;" Prof. Jordan, "Commercial Fertilizers, etc.;" Secretary Edge, Dr. Calder and Prof. Heiges will discuss general topics of great practical importance.

Dr. Harvey's lecture on "The Horse" will be delivered on Wednesday evening, and he will be followed by either Dr. Loring or Col. Piolet.

The following well-known Lancaster county farmers and friends of agriculture have been invited to participate in the proceedings, by reading essays or taking part in the discussions: Thomas Baker, John H. Landis, Calvin Cooper, John C. Linville, Casper Hiller, Henry M. Engle, Enos H. Weaver, Joseph R. Blackburn, Jacob M. Frantz, M. P. Cooper, T. W. Kinzer, J. P. Wickersham, Johnson Miller, Dr. Bollinger, Israel L. Landis, C. L. Hunsicker, M. D. Kendlig, Levi S. Reist, S. P. Eby, Arthur Kenney, J. F. Witmer, Wm. H. Brosius, H. G. Rush, E. H. Hoover.

Among the subjects to be presented by these gentlemen are the following: Farmers' Holidays; The Influence of Agricultural Societies; Farmers' Homes, and how to make them Attractive; How to Plant and Manage an Orchard; Small Fruit and Market Gardening; Advantages of Creameries; Farm Economy; Should Farmers Interest Them selves in Public Affairs? Farmers' Wives, the Necessity of their Relief from Overwork; Conditions for Obtaining good Crops of Tobacco; Should the Elements of Agriculture be taught in the Public Schools in Farming Communities? How to Keep Farmers' Sons on Farms; How to Manage a Farm.

Excursion ticket to and from Lancaster, good for the two days of the Institute, will be sold at all the stations on the Pennsylvania railroad in Lancaster county. The Reading railroad will sell daily excursion tickets.

LINNEAN SOCIETY.

The Linnean Society met in their rooms (Y. M. C. A. building) on Saturday, May 3, 1884, at 2 P. M., as per postponement from April 29. The President, J. P. Wickersham, in the chair, and minutes of previous meeting read, approved and dues collected. Six visitors in addition to members in attendance,

among them Prof. Kerr, of the College of Mines and Mining, Colorado.

Donations to Museum

consisted of an abnormal mounted specimen of the common "deer," (*Cervus virginianus*) purchased and donated by the members. This animal seems to be what is generally regarded as an Albino. Deer not only shed their antlers annually, but they also shed, or change, the color of their hair semi-annually. This species normally is of a light fawn color in summer, and a reddish gray in winter, with the underpart of the throat and tail always white. Whatever the cause may be, we often see a similar abnormality among what are called "English Rabbits," and said to be influenced by domestication. An article on this specimen will be read at May Meeting.

A specimen of Alligator *Mississippiensis* donated by Dr. S. T. Davis. Dr. D. had this and other specimens of the Saurian in his possession about four years. By comparing it with one now in the museum of the Society, obtained four years ago, we make some approximation to their manner of growth, as they were all about the same size three years ago.

A specimen of the rare "Hoary Bat" (*Ves pertilio prinostus*) donated by Samuel McComery per S. M. Sener. The society obtained two or three specimens of this bat within the past twenty years, but this was the first one captured within the city limits. It probably is not gregarious. Our common red bat, *V. novboracensis*, occurs in colonies of from three to five hundred, but this species has heretofore been only found singly. This specimen will be kept alive and notes taken in regard to habits, etc.

A pair of wooden shoes, donated by Lewis Haldy. These shoes are not "foreigners" although made by foreigners. They were made by Germans in the State of Wisconsin, and apparently of the wood of Catalpa species.

A collection of about 125 specifications of metallic minerals donated by Dr. William B. Fahnestock. These minerals mainly consist of blue and green carbonate of copper from the Cornwall mines, Lebanon county, Pa., and from South Carolina, also gold and silver ores from South Carolina. One specimen of blue carbonate copper is about 12 inches square, and weighs 10 pounds.

S. M. Sener donated a specimen of the tapeworm, found in the intestines of a chicken, also a bird's nest, probably a wren's or warbler's, found in a garden.

Dr. William B. Fahnestock also donated a portfolio containing 30 folio sheets of Lancaster county plants, and 17 folio sheets of Alpine plants, Switzerland. These specimens are mounted from 2 to 10 on a sheet, and were given to Dr. Fahnestock in 1834, by Dr. Samuel Du Fresnoe. Dr. Du Fresnoe resided in Lancaster and built the peculiar cupola building on Christian street, in rear of Zaeffel's old building. He was quite a scientist and doctor, and is interred in the Presbyterian cemetery.

Professor J. S. Stahldonated a fine mounted specimen of a plant entirely new to both State and county, found by himself at Willow Street. This is the "Hieracium Carolinianum" Fries.

Donations to library consisted of proceedings of Academy of Natural Sciences, of Philadelphia, part 3, November and December, 1883. United States Patent Office Gazette, Nos. 3, 4 and 13, volume 25; Index of patents, index of inventions, etc., for quarter ending December, 1883.

Catalogue of Library of C. Herrington, M. D., Philadelphia; Hovey & Co's. catalogue of rare trees, plants, etc., 1884; Seventh catalogue of Little, Brown & Co., Boston; volume 1, No. 1 of *Weekly Ledger*, Lancaster, Pa.

Report of the U. S. Agricultural Department for 1883, octavo, 496 pages, 1 map, 7 diagrams and 44 plates, many colored. Third report of United States Entomological Commission (Riley, Packard, Thomas), for 1879-82, octavo, 500 pages, 63 plates, on insect anatomy and larvae.

LANCASTER FARMER, April, 1884.

Circulars of Bureau of Education, No. 5, 1873,

No. 1, 1881, and "American School at Athens" for 1882-3.

Prospectus Standard Natural History, Book Buyer American and Foreign Literature, Clearance List of Art, Books and Periodical Literature, Lindy's newspaper file and file-holder, railroad map of Red River valley, "Happy Days in the Azores," by Marianne Gibbons, donated by Mrs. L. D. Zell; Articles of Incorporation and 1st annual report, etc., and other pamphlets from Oneida Historical Society, Utica, New York; Moral and religious aspect of the Indian question from Gen. C. W. Darling; Copies *Utica Herald* for April 1, 8, 26 and 29, 1884, also copy of *Huron Journal* April 9, 1884, containing reference to Lincoln donations to Oneida Historical Society, two old numbers Science Gossip, Catalogues of books from A. E. Foster, J. Wana-maker, Gay & Bro., Bessonses of New South Wales, 1876; Catalogue of high bred trotting stock, and Insullian Nurseries. Catalogues of coins and one of fossils for sale; S. M. Sener donated a 10 by 12 line engraving of Dr. J. P. Wickersham, executed by Sorlat, twenty years ago. Letters on file from J. S. Witmer, John W. Greider, Mrs. Gibbons, Oneida Historical Society, C. W. Darling and Boston Public Library. Boston Library asked for exchange of books, etc. Sent them copies of *Fauna*. Committee on Constitution and by Laws report and committee. Bills for alcohol, jar, hauling, postage, expressage, etc., in all \$3.17, was ordered to be paid. The secretary distributed samples of published proceedings, and on motion it was ordered that the April meeting proceedings be published in bulletin form, and a motion made and carried that copies be sent to members for final action in regard to bulletin at May meeting. Subscriptions listed of members and amounts subscribed on purchase of white deer filed in archives. Prof. J. S. Stahld read a paper on the new plant discovered by him and as it is deemed of importance and value the paper is here produced in full.

A New Planet.

Hieracium Carolinianum, Fries. I have the honor to present to the society to day a specimen of the above named plant, collected by myself about the 1st of July, 1883, near Willow Street in this county. I was induced to look for it in that locality by my friend Prof. T. C. Porter, L. E. D., of Easton, Pa., who found a specimen more than twenty years ago. It was formerly regarded by some as a variety of *H. foliosum*, of Michaux; or of *H. groenovii* of Liu, and by others as a variety of *H. Paniculatum* of Lin. Prof. Gray, who is at present studying the composita with a view to the publication of a new edition of his "Botany of North America," recently got Dr. Porter's specimens (obtained from myself), and pronounced it *H. Carolinianum*, of Fries. It is, therefore, a species new to both State and county.

Lancaster, May 5, 1884.

J. S. STAHL.

Dr. Rathvon announced that at the May meeting he would read a paper on "Comprehensive Experience in Natural History," in the lecture room of Y. M. C. A., to which all who take an interest in scientific pursuits are invited to attend. Society adjourned to meet on Saturday, May 31, 1884, at 2:50 P. M.

FULTON FARMERS' CLUB.

The Fulton Farmers' Club met at the residence of Wm. King, on Saturday, May 3. The members present were Wm. King, E. H. Haines, Grace King, Lindley King, Marshall Nesbit and Day Wood. Visitors: Isaac Bradley, Vincent Reynolds and wife, Howard Coates and several others. In the absence of the President, E. H. Haines called the meeting to order. The minutes of the last meeting were read and approved.

Asking and Answering Questions.

Wm. King asked: Would it be profitable to top dress grass land with South Carolina rock.

Lindley King said he had tried it in a small way but thinks it did not pay him.

Isaac Bradley thought this was not the way to apply this manure; that by lying on the surface there was a possibility of evaporation and wastage. He believed the proper way was to plough it down. Several other names thought it would not pay.

E. H. Haines spoke of an experiment he made by sowing about 400 pounds of rock across alternate strips of clover and timothy; it made little show on the timothy, but increased the clover fully one-half, and also made quite an increase the following year.

Lizzie Wood asked if it is necessary to put lime in ashes to make soap.

Rachel Gibson said she has made good soap either way, but lime increases the quantity of soap.

Lydia Reynolds thinks lime is of great advantage to make ashes stronger.

Mrs. Nesbit always heretofore used lime, but in tends to make her soap without lime this year and will report her success at a future meeting.

Clarinda Richards said that a manufacturer of soap told a friend of hers that in making soap there never was enough of lime used; he used one-third of the quantity of ashes; she never used this quantity herself, but about one-half bushel of lime to a barrel of ashes.

E. H. Haines asked what he should plant on a piece of stock ground he wanted to lay over and plant in corn next spring. It was suggested that he plant in rye and pasture this fall and early spring.

Vincent Reynolds spoke of ploughing down green manure. He planted three plots; one in corn, one in beans, and a third in Hungarian and all were ploughed down for wheat. He gave a small dressing of manure on the spread over the ploughed ground. Where the corn was the wheat was greatly the best, the bean plot next and the Hungarian last. He could plainly see the green corn plot the second year in the increase in grass.

The club then adjourned for dinner. After a pleasant walk over a part of the host's farm, and seeing his stock crops and buildings, the club re-assembled.

Afternoon Session.

The minutes of the meeting last held were then read, and the usual criticisms on farm management called for. There were several improvements noticed, a new ice house and some whitewashing done. One member said the herd of cows looked better than he ever saw them, and that the host was getting a very fine herd of cows.

Wm. King read an article from the *Lancaster Gazette*, (published in 1856,) on Railroads and Canals.

Rebecca King read a temperance selection.

Lizzie Wood read "A Story of Science."

A committee, E. H. Haines, Marchell Nesbit and Day Wood, was appointed to make arrangements for holding a joint public sale of stock to be held at Penn Hill, some time in June, giving all members as well as outsiders opportunity of disposing of any surplus cows, hogs, sheep and horses. It was decided to advertise in several papers, and have large bills printed. All communications relating to this are to be addressed to E. H. Haines, Pleasant Grove.

Club then adjourned to meet at C. C. Kaufman's, the usual time in June.

AGRICULTURE.

Composition Manures.

Will it pay to compost manures? is a question which is often asked and frequently discussed at farmers' meetings, but never settled by definite answers or conclusive arguments. Why? Because for some purposes it will pay, and for others it will not pay. For growing field corn or potatoes it will not pay to compost all of the manure, but, as a rule, it will pay to compost enough of it to put a small quantity in each hill to start the young corn or potatoes. For garden crops it will pay to compost a larger proportion of it than for field crops. The composting of manure simply advances it toward

plant foods, or, in other words, it ripens it. At first thought it would seem that under all circumstances it would be best to thus prepare manure for plant food, but on a careful investigation it will be found that to offset the advantages there are two ways to lose; first, the labor of composting; second, the loss of the action of the escaped gases on the elements of the soil. Every careful observer has noticed the changed condition of the soil to which has been applied green manure. In the process of decomposition the soil is filled with gases which seem to have the power to lighten it up and make it in a better condition for plant growth. It is believed by some that somehow these gases in connection with the soil, change the pure nitrogen of the air into a condition to render it available for plant food. Whether or not this is so is a question yet to be settled. But one thing is evident, which is, when green manure is applied to the soil and well mixed with it, when it gets into an active state of decomposition, the crops grow very rapid. When it is desired that plants should feel the immediate effects of manure, it should be well rotted, but not mixed with other materials, except just enough to keep it from burning. It is as a rule a waste of labor to compost manure with an equal bulk of loam or muck; better compost it directly with the soil and thus save labor. He who is composting his manures adds more to it than enough to keep it from burning, and the gases from escaping, does not occupy his time to the best advantage.

Soiling.

This subject is still claiming attention, and near cities where land is dear, or on small farms that are nearly all suitable to plow, there are many points in its favor. It seems to be the nearest approach to high farming of any system yet presented. It puts the manure back in the soil where the food came from; while under the present system cows run in pastures and are driven in at night, and most of the manure that is not dropped in the highway is put on the tillage land, and the pastures are growing poorer. If New England plowing is ever reduced to anything like system, we shall probably see cows, at least, fed by soiling, and the rough, hillside pastures with sheep and colts. L. B. Arnold, in the *American Cultivator*, closes a thoughtful article with these remarks, which are peculiarly adapted to Eastern farming: "Granting, however, that the cost of soiling and grazing are equal, soiling, even then, will reduce the cost of milk, because it produces so much more milk from the same outlay. By reason of better milk-producing food, and a constant and full supply, independent of the fluctuations in the weather, soiling, even though practiced the middle half of the season only, will produce 50 per cent. more milk than grazing, the expenses of keeping being the same. Grazing may do well enough in the West where land can be had almost for the asking, and it answers in the East during spring and fall, but eastern dairymen cannot afford to graze during the parching season of midsummer. It is too uncertain in its character, and results in finally producing a minimum of milk at a maximum of cost.

Henry Stewart says: "It is the labor always that produces, and if the work of one man at \$1 per day will care for and feed thirty or fifty cows with cut green fodder in a barn, and these cattle will make manure enough to produce fodder to feed one head to the acre, then it is easily seen that this small expense will strike a very favorable balance between the cost of feeding one cow upon an acre costing \$100 and one cow upon five acres costing the same. It is not the area of land cultivated that makes the profit, but the weight of the produce from each acre. Many a farmer is poorer with 500 acres of land than another with 100. A farmer who keeps twenty cows on 100 acres is poorer than one who feeds as many as twenty acres, and he makes actually less yearly income than many a market gardener who cultivates on five acres and employs five men to the acre."

HORTICULTURE.

Root-Habit of the Strawberry.

According to one of his latest bulletins from the State Experiment Station, at Geneva, Director Sturtevant, on August 13 of last year, washed out a strawberry plant of the Triumph de Grand variety, with the following result:

"The roots extended nearly vertically downward to the depth of twenty two inches. The horizontal roots were few and short, the longest being traceable but six inches. Nearly all the fibrous roots were found directly beneath the plant. The new roots appeared growing out about an inch above the old ones, and the longest of these had attained at this time a length of six inches. They were white and tipped at the extremities with a thickened point."

The teaching of this one observation is that since the roots go deep the bed should be prepared by previous culture and thorough fertilization to a considerable depth; that, since the roots cover an area scarcely larger than the leaves, the plant may be set close, provided the soil is rich enough to properly sustain all, and that, since the roots run so nearly vertical, there is little danger of deep cultivation of the ground between the rows, even after the plants have reached full size. And this added point or two we give in the director's own words:

"The fact that the new roots grow out above the old ones each year explains why strawberry plants appear to elevate themselves upward as they become old, and suggests the importance of drawing earth toward them after the bearing season. The formation of the new root above the old ones as well suggests the advisability of surface manuring after the crop is harvested, for these latter roots occupy the upper portions of the soil. Our observations also suggest the advisability of applying the manure or fertilizer close to the plant, as thus being more effective than when placed simply between the rows."

Dr. Sturtevant suggests it as an interesting subject of inquiry "whether the varieties within an agricultural species have as distinct habits in their root formation within the soil as they display in their visible formation out of it," and incidentally mentions that a cauliflower had, August 13, roots which were traced to a depth of two and a half to three feet, and horizontally about two and a half feet, and the "fibrous roots were less numerous in the upper than the lower layers of soil." Hence for this crop the soil should be rich low down, as well as at the surface, for the special use of the plants when young.—*New York Tribune.*

Pruning the Grape Vine.

Mr. W. W. Meach, Uxland, N. J., writes: Grape vines that have come to bearing age, may be pruned in such a manner as to be very certain of the results. By examining the vines while they are growing, one can very readily see from which bud of the previous year's growth, have produced its branches that are producing the crop of the current year. This will serve as a guide to the pruning for the next crop, and so on from year to year. Shoots from canes older than the last year, very seldom produce anything but wood, but that wood is all right for a crop the next year. The shoots from the canes together, will hardly ever produce any grapes. The first bud by the young axil will be found to yield fruit, but the clusters from the next bud, and for several farther on, will generally bear the shoulder branches of the crop. I have found in my experience that six buds on a strong cane, so selected, will generally yield three fine clusters each; and occasionally four. Up to the capacity of the vine, we may look for the number of clusters from the buds of very strong and vigorous canes of the last year's growth. Hence, according to the number of perfect clusters we estimate the vine capable of producing, we can readily select those giving the best promise, and cut all the others off. The plan of pruning greatly reduces the labor as compared with the old method of leaving spurs of one or two buds all over the vine, and gives little wood and many grapes.—*American Agriculturist.*

Raising Potatoes By The Straw Process.

From my experience in raising potatoes under straw I believe they could be raised in this way successfully, and save the labor of cultivation. I had a small plot of ground broken and made mellow. The potatoes were planted by first running a small furrow, and then dropping the seed pieces in this furrow, every eight inches, and covered by running another furrow, throwing the soil in the first, and then seed dropped in this, so on until finished. The ground was now covered with straw six or eight inches deep. I waited until I thought they should be coming up, and then I examined them. I found that the moles had ruined my patch. The compost that had been worked in the soil enticed earth worms and the moles, in hunting for the worms, had eaten all the seed. At least now came up. The next spring I concluded to plant in a different way. I had my ground broken up deep, working a rich and well rotted compost thoroughly in the soil. The soil was now leveled and smoothed. The seed pieces were planted on top of the soil in straight lines ten inches apart and eight inches apart in the lines. The whole was then covered with about six or eight inches of straw. I found the moles would raise the soil some, but did not molest the potatoes any. I find that a liberal sprinkling of unleached ashes about twice during the growing season is of great advantage. Many vines when stretched up measured five feet, and the tubers were the finest I ever raised.

—*Correspondent Indiana Farmer.*

How to Get Early Potatoes.

The best plan we have ever tried to get "new potatoes" a few days in advance of the main crop, and to be first in the race—which is one of the many pleasures in gardening—is to select medium sized potatoes, and put them in a box of Sphagnum Moss, or, if that cannot be obtained, saw-dust or common garden soil will answer; place the potatoes seed end up, and fill between them and under them with the moss, leaving only the tip of the potato exposed. This will cause the leading eye to sprout, which takes most of the nourishment from the tuber, and consequently is much stronger than it would be if the other eyes produced plants. These should be started about a month earlier than the usual planting time. These boxes of tubers may be placed in a hot-bed, or in any warm room, giving them all the light possible. When the time has arrived for planting out, remove the tubers as carefully as possible, in order not to injure the roots, and plant in well prepared soil. Remove any except the main shoot, should any appear. By this method potatoes may be had from one to two weeks earlier than by the ordinary method of planting.

HOUSEHOLD RECIPES.

GEMS.—One small quart flour, one pint sour milk, one teaspoonful each of soda and salt; heat the gem-pans hot, fill and bake.

OMELETTE.—Break six eggs, season with pepper and salt; add a tablespoonful of finely grated bread crumbs. Beat the whole well together, and fry in butter.

SUGAR BISCUIT.—One quart of flour, one cup of sugar, three teaspoonfuls of baking powder, two tablespoonfuls of lard, two eggs, two-thirds of a pint of milk. Sift together flour, salt, sugar and powder; rub in lard cold; add beaten eggs and milk; mix smooth and drop with a spoon on a greased baking tin; sift sugar over top; bake in a hot oven ten minutes.

MOLASSES PIES.—One-half cupful sugar, one-half cupful molasses, yolks of three eggs, butter size of walnut, one-half nutmeg. Put all together and heat, then stir in the well-beaten eggs. Bake the crusts partly done and pour in the mixture. Beat the whites of three eggs, sweeten very little, and put on after the pies are done.

COCAONUT TARTS are a pleasing addition to the plain dinner for a family where there are children.

Line small tins with nice light crust and fill with this mixture: Dissolve a quarter of a pound of sugar in a little water, add as much grated coconut as you can stir in, and have well mixed with the sugar. Let this simmer slowly for a few minutes, then when it cools add the yolks of two eggs. Fill the tins and bake for ten minutes in a quick oven. Cover the top with a meringue made of the whites of the eggs and two tablespoonfuls of powdered sugar. Brown in the oven. If you do not care to take quite so much trouble put the whites and yolks both in with the coconut and sugar.

PARLOA POTATOES.—Miss Parloa cuts cold potatoes in cubes, dips them slightly in flour for Dutch potatoes, which are baked in the oven on a greased dish for twenty minutes. Escaloped potatoes are prepared by cutting cold potatoes in thin slices, and baking them in a cream sauce with a layer of bread crumbs on top. For Lyonnese potatoes take three tablespoonfuls of butter, put in a frying pan, and when the butter is melted, a tablespoonful of chopped onion is fried in it till it is of a pale straw color, when a quart of potatoes, cut in dice, are added, thoroughly seasoned with salt and pepper. When they are hot a tablespoonful of chopped parsley is sprinkled over them, and the whole cooked two minutes longer.

FISH TOAST.—Take cold boiled fish of any kind, pick it into flakes and heat in enough milk to moisten it; add a bit of butter, and season with pepper and salt. When it is hot, pour it on slices of buttered toast, and garnish with hard-boiled eggs, cut in slices.

NET CAKE.—Two cups of sugar, one cup of butter, three cups of flour, one cup of cold water, four eggs, one teaspoonful of soda, two teaspoonfuls of cream of tartar, and two cups of hickory nuts carefully picked out and added last of all.

MOCK LEMON PIE.—One-half cup of sugar, yolks of four eggs, one-half cup of sweet milk and one-half cup of water; beat the eggs, add the rest, beat all together, and place in a crust the same as for a custard pie. When done, beat the whites of an egg to a stiff froth, add a tablespoonful of sugar, and one teaspoonful of extract of lemon, spread over the pie, return to the oven and brown. This makes a small pie.

FISH PIE.—Take off the skin, and remove the bones of any odds and ends of cold fish that may be possessed; add to this an equal weight of cold mashed potatoes and any cooked rice that may be over from a dish of curry. Season with pepper and salt, and place the mixture in a well-greased dish with some lumps of dripping at the top, in the oven, and bake until it is a light brown color.

A RICH DINNER.—A delicate and delicious dish is made by boiling one-quarter of a pound of rice in one pint and a half of milk; to this add two ounces of sweet almonds blanched, with two ounces of white sugar. Boil until the rice is tender. Do not stir the rice, but shake the kettle in which it boils. When done serve it in cups which you have first wet with cold water. Leave a space on the top of each cup so you may put a spoonful of jelly with cream poured around it, or whipped cream and powdered sugar, or meringue made of the white of an egg and of sugar, or a chocolate frosting like that for cake. This simple dish admits of great variety in its decoration or in the sauce in which it is served.

EGGS ON TOAST.—Six eggs, one cupful drawn butter (drawn in milk), slices of stale bread (toasted and buttered), chopped parsley, pepper and salt. Heat a cupful of milk to scalding; mix in a large teaspoonful of butter, a teaspoonful of flour wet with cold water and rubbed smooth, and stir until it is as thick as custard. Add chopped parsley, pepper and salt to taste. All this should be done in a thin vessel set in boiling water and over the fire. Have ready the toast (not forgetting to pare the crust from each slice before it is toasted), buttered and laid in close rows upon a hot dish. Pour a tablespoonful of hot water on each piece. Beat the eggs very light, and stir fast in the drawn butter until

they are a rich yellow sauer, almost stiff enough to stand alone. Heap upon the toast and send hot to table.

DELICIOUS FIG CANDY is made by boiling one pound of white sugar with one pint of water. When it hardens in cold water pour it over figs which you have split and placed on buttered plates. Just before you take the candy from the fire add a small lump of butter and one tablespoonful of vinegar. If you prefer it, the figs may be chopped and be mixed with candy.

A Good recipe for a loaf cake is contributed by a "constant reader." Four cups of sifted flour, three cups of powdered sugar, four eggs, one cup of sweet milk, one glass of colorless wine, one nutmeg grated, a teaspoonful of cinnamon, and a small teaspoonful of soda dissolved in a little hot water; stir it briskly, so that the ingredients will be thoroughly mixed before putting into the tin.

MINNEHA CAKE.—One cup sugar, half cup butter, half cup of milk, two cups flour, two eggs, two teaspoonfuls of baking powder. Bake in layers. Take half cup of chopped raisins, half cup sugar, quarter cup water, white of one egg; beat to a froth. Stir sugar, raisins and egg well together and boil till quite thick. When cold place between the layers of the cake.

DELICIOUS PUDDING.—One quart scalded milk, three tablespoonfuls cornstarch, moistened with a little cold milk; stir into the boiling milk the yolks of six eggs, well beaten, four tablespoonfuls sugar; stir all together. Take off the fire, flavor and put into pudding dish. Then beat the whites of the eggs to a stiff froth, spread over the top, and brown in the oven.

FAIRY CAKE.—Two cups sugar, cup cream, one-half cup butter, two and one-half cups flour, four yolks of eggs, one white of egg, two and one-half teaspoonfuls of baking powder. Bake in jelly cake tins, and spread with icing made as follows: Three-fourths pound pulverized sugar, whites of three eggs; begin adding sugar as you heat the whites and cover the whole cake. Flavor cake and icing with lemon.

WATERMELON CAKE.—White part: Two cups sugar, two-thirds cup butter, two-thirds cup milk, three cups flour, five whites of eggs, one tablespoonful baking powder. Red part: One cup red sugar, one-third cup butter, two cups flour, one-third cup milk, one cup raisins (whole), five whites of eggs, one tablespoonful baking powder. Roll the raisins in powdered sugar, stir them into the red part of the cake, put it in the pan and pour the white around it. The cake may be iced with yellow icing, if desired.

ORANGE PUDDING.—One pint of milk, the yolks of two eggs, and grated rind of two oranges, two good tablespoonfuls of cornstarch wet in a little cold milk, and sweeten to taste, very little salt. Heat the milk almost to boiling, then stir in the starch and cook till it thickens. Cut six oranges in small pieces and put them into a deep dish. Cover with sugar. When the custard is cool, pour it over the oranges. Beat the whites to a stiff froth together with a little sugar, and spread it over the whole. Set in oven, if you like, just to brown.

VELVET PUDDING.—Five eggs, beaten separately, one teaspoonful white sugar, four tablespoonfuls cornstarch dissolved in a little cold milk and added to the yolks and sugar. Beat three pints of sweet milk, pouring in the yolks and sugar while it is boiling. Remove from the fire when it has become quite thick. Flavor with vanilla and pour into a baking dish. Beat the whites of the eggs to a stiff froth, with half a teaspoonful of white sugar. Then pour it over the top of the pudding and return it to the stove until it is slightly browned. Eat with sauce.

ENGLISH PLUM PUDDING.—Three pounds flour, six pounds currants, six pounds raisins, three pounds brown sugar, two and one-half pounds beet suet, two cups bread crumbs, one-half pound citron, one spoonful grated carrot, two ounces cinnamon, two

ounces cloves; allspice, one ounce; nutmeg, one ounce; the rind of two lemons, one dozen eggs, one-half pint strong ale, one-half teaspoonful salt, one quart warm milk, and as much bran as you please. It requires to be boiled twelve hours. This is the real English recipe for plum pudding, and makes a number of puddings, which may be kept for months and steamed up when wanted.

POULTRY.

Points About Raising Turkeys.

The one thing that has paid the past year is turkeys. They had quick sale at Thanksgiving for 20 cents a pound, and at Christmas for 21 to 22 cents, and the farmers could have had 25 cents at the last season if they had known as much about the market three days before Christmas as they did three days after. And this price is not exceptional. The average for good New England turkeys for the last twenty years, I believe will exceed 18 cents a pound, if it does not reach twenty cents.

If a farmer has reasonable "luck"—that is, if he has as good luck as generally comes of intelligent care—he can make 1,000 pounds of turkey meat for \$100 easy, and sell the same for \$300, or, putting it better: A flock of 100 turkeys will not cost him in grain feed over \$75, if they are killed before Thanksgiving, and they ought to average twelve pounds each, which makes twelve hundred pounds in all, and to sell for 20 cents a pound, or \$240. I have raised turkeys for many years, most years with fair success, and, whatever the success, they have always been the best paying production of the farm.

This is my plan: Keep over ten hens and a tom; the hens the best birds in the fall flock; part old and part young. Old hens of good habits are to be preferred. Feed lightly all winter. About March 1 increase the feed and provide places for their nests near the house. When they begin to lay be careful that the eggs do not get chilled. Do all you can to get your turkeys to setting as early as possible. Early turkeys are twice as likely to live as late ones. When the young come off put them in little brood pens in a warm place for a week or more, feeding them six or eight times a day with coarse meal and chopped hard boiled eggs, mixed with water, or, what is better, sour milk. As soon as the are strong enough give them a pasture range at first, then turn them into a meadow, but by all means send them at noon, and to this end drive them up to the house. This will get them acclimated to coming up for their dinner, and so they will not go far away from home. See that they are always fed and safely housed at night, so that foxes and skunks will not and cannot destroy them. Make it a matter of thought to see that your turkeys are safe all summer. Begin to fatten in September and kill at Thanksgiving, and you will be able to put a few dollars in some new savings bank which you may honestly call pay for your care and work and profit in the grain feed. This business cannot be overdone, and I advise farmers to put a few dollars into turkeys for next season (if they can find them) at once.—*Farm and Home.*

Fowls Must Have Green Stuff.

It must not be forgotten that our poultry need some sort of green food at all seasons of the year.

In winter we can give them cabbages or chopped turnips and onions from time to time; short, larded hay (or town) is very good for a change; corn-stalk leaves chopped fine, they will eat with a relish.

In early spring time, when the ground first softens from the frost, pasture *sods* thrown into their pens will be ravenously eaten by them; and as soon as the new grass starts (unless they have free access to the fields or lawns) they should be supplied with this excellent succulent daily. For the young chickens nothing is so beneficial and so grateful as a run upon the newly grown grass; and next to this indulgence they should have an ample supply of cut or pulled grass every day.

But of course white Jack Frost bears away "this sort of truck" is out of the question. Some careful poultry keepers sprout oats in boxes of earth, and allow choice birds to pluck the tender blades. The common Swedish turnip and the carrot are excellent for winter green poultry feed, and probably the most available and the cheapest vegetables that can be procured. If the fowls do not "take kindly" to them, when offered in a raw state, cook and mash and mix with bran and meal.

Change the Food.

Confining any kind of stock whatever, whether poultry or animals, to one particular kind of food, is not only a very careless system of management, but it is sure to be a very unprofitable one. Keep a flock of fowls, especially the Bramas or Cochins, supplied with corn regularly and they will soon cease to lay. They will lay on fat, will grow heavy and sluggish, but the production of eggs will gradually lessen until not one can be found. This is caused by an undue accumulation of fat or adipose matter in the ovaries or egg sacks, and effectually prevent the formation of eggs. While other grains, such as oats, wheat, buckwheat and other foods are not quite so bad, yet no one kind of grain should be fed to the entire exclusion of other kinds of feed. Give them a change of food as often as it can be conveniently done, if you wish to secure plenty of eggs, as well as to keep your fowls in good growing condition. Over-fat fowls are apt to contract disease much more quickly than those in only a thriving condition, while they almost invariably succumb to the attack when disease does overtake them. The mortality among over-fed specimens is far greater than among those which always have a keen appetite for their regular meals and meals for their appetites. It requires but little experience to fully demonstrate this.

Poultry Keeping for Women.

While most farmers' wives find enough to do to give them all necessary physical exercise, there are many women and girls in mechanics' houses as well as in farmers' that would find pleasure, profit and health in taking care of a flock of fowls. It would afford outdoor exercise and relieve the strain of household cares, instructing the mind in things outside of self, and add many days to the life of many a one. The instruction and training they get by studying the habits and needs of fowls and caring for their wants is excellent—much more valuable probably than they would obtain at the sewing circle or from attending a female society meeting.

LITERARY AND PERSONAL.

PAMPHLETS RECEIVED.—Fertilizers in general, and the green manure of King William County, Va., in particular, compiled by Dr. C. A. Green, of Harrisonburg, Pa.; 29 pp. 8 vo. "An essay on insects injurious to vegetation, and how to get rid of them," by the same, 12 pp. 8 vo. Whatever merit may be accorded this pamphlet, it is practically "the play of Hamlet with the part of Hamlet left out."

"Report of the area of winter grain, the condition of farm animals, and the freight rates, for April, 1884;" 48 pp. 8 vo., from the Department of Agriculture.

"Catalogue of the valuable Entomological Library of the late John L. De Conte, M. D., of Philadelphia; being the most important Library on Entomology ever offered for sale, either in Europe or America," May 6, 7, 8, 1884, 1117 Chestnut street, Philadelphia, Pa., 52 pp. royal octavo, comprising 737 separate vols., some of which are composed of numerous volumes, pamphlets and parts.

MARYLAND FARMER.—A monthly magazine devoted to agriculture, live stock, and rural economy, published by Ezra Whitman, Baltimore, Md.; Vol. 21, March, 1884, claims to be "the oldest agricultural journal in Maryland, and for ten years the only one;" 76 pp. royal octavo, 51 of which are advertisements, with an index and tinted covers.

Fairly gotten up and handsomely illustrated; \$1 a year, with valuable clubbing advantages; valuable as an agricultural education and an advertising medium.

THE HUMAN EDUCATOR.—Vol. 1, No. 2, Cincinnati, March, 1884; \$1 a year; 10 pp. imperial quarto superbly illustrated, fine material, and first-class mechanical execution. Published monthly by the Ohio State Society for the prevention of cruelty to animals; Oscar B. Tolhunte, editor; 200 Vine street. An able advocate of the cause to which it is devoted, and worthy of the practical sympathy of all.

THE HOUSEWIFE.—A domestic journal devoted to the interest of American housewives. Rochester, N. Y., April 1, 1884. \$1.00 a year in advance; published monthly by the *Housewife* company. No. 2 vol. 1 of this excellent journal is on our table, and its moral tone is the most fragrant and healthful of the season. It is an eight-page quarto, and everything in its columns leaves us wiser, better, and more charitable than we were before we perused it. It does much to fill a great vacuum unconsciously existing in the domestic world, and insinuates its influence so gently that we cannot but be captivated by its wholesome inculcations. Oh, how much there is yet to be developed in this field of humanizing literature. How far the domestic establishments of our country have been wandering from the ways of peaceful bliss. How certainly our derelictions of duty "will come day come back upon us." Man and wife, subscribe for it and read it—yea, brother and sister, son and daughter also.

THE AMERICAN SHEEP-BREEDER AND WOOL GROWER. An illustrated magazine. Published monthly at Chicago, Ill.; \$1.00 a year. No. 1, vol. 1 of this 24-page quarto is now before us, from which it will be perceived that it is an entirely new candidate for public favor, but, although infantile as to age, its "grand glorious title" may be inferred from the fact that it threatens to issue 100,000 copies of its June number, containing the proceedings of the National Wool Growers' Convention, which meets in the city of Chicago on the 19th of May. Edited by U. S. Burch Publishing Co., 75 and 77 Market street. "With its full fund of useful and valuable information on all possible topics relating to sheep and wool, prepared by the ablest authorities and most successful sheep raisers and wool growers, it will, of itself, be a volume of education to the readers." Its material, quality, and make up, is unexceptionably first-class in all its details, and its specialty one of the most hopeful in the country.

THE NORTHWESTERN FARMER.—A monthly journal for the farm, orchard and household, published by Edward A. Webb, No. 15 Seventh street, Fargo, Dakota Territory, U. S., at \$1 a year, invariably in advance; and edited by J. F. Daily. A 16 page royal 8 vo., fairly illustrated and interspersed by conspicuous advertisements, a kind of "logrolling" arrangement between the advertisers and literary contributors. Even with this objectionable feature, this journal is one of rare merit, and we who remain of the old school of editors, will, of itself, be not but look with wonder and admiration upon the literary advances that are being made, "away out" on the borders of our national civilization. "Prich Dakota Territory, the farmers were seeking a publisher" in Brown county, on the last week in March—more than they were doing in Lancaster county at that period.

FARM, FIELD AND FIRESIDE.—Devoted to agriculture, horticulture, gardening, dairy, live stock, literature and home entertainment. Published by W. V. R. Fowls, Chicago, Ill., at one dollar a year. A splendidly executed and illustrated imperial quarto (if not a demi-folio) of 26 pages, in embellished tinted covers, subject to the same objection alluded to in the notice above. We may be peculiar in this respect, but it always reminds us of the itinerant preacher, who always announced the sale of his wife's "intallible corn salve," at the close of his sermons. We dislike to see such beautiful publications so egregiously disgraced by temporary advertisements.

THE FOREIGN MISSIONARY.—Illustrated royal quarto of four pages; a Sabbath school journal published in the interest of foreign missions, and distributed gratuitously.

LE CITOYEN AMERICAIN, Liberte, Egalite, Fraternite. The only English and French paper, translated in alternate columns, published in Ann Arbor, Michigan, March, 8th a year. A medium folio published weekly, and devoted to "eversonian" interests, "wise and otherwise"—although a little "Red."

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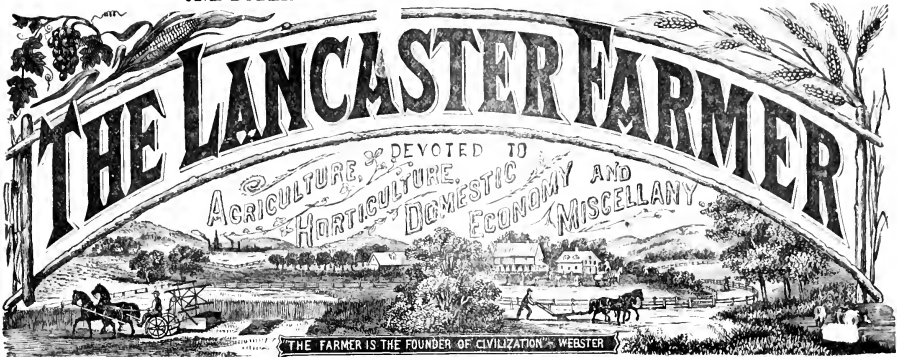
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PENNSYLVANIA RAILROAD SCHEDULE.
On and after SUNDAY, JUNE 24, 1883, trains leave the Depot in this city, as follows:

WE TWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express	1:35 a. m.	2:55 a. m.
News Express	6:25 a. m.	7:30 a. m.
Way Passenger	6:30 a. m.	8:50 a. m.
Mail Train via Mt. Joy	9:30 a. m.	10:50 a. m.
Mail No. 2 via Columbia	9:35 a. m.	11:05 a. m.
Niagara Express	9:45 a. m.	10:55 a. m.
Hanover Accommodation	9:50 a. m.	Col. 10:20 a. m.
Fast Line	1:25 p. m.	2:55 p. m.
Frederick Accommodation	1:45 p. m.	Col. 2:15 p. m.
Lancaster Accommod.	2:30 p. m.	4:00 p. m.
Harrisburg Accom.	3:20 p. m.	7:20 p. m.
Columbia Accommodation	7:30 p. m.	Col. 8:15 p. m.
Harrisburg Express	7:40 p. m.	8:25 p. m.
Western Express	11:10 p. m.	12:25 a. m.

EASTWARD.	Leave Lancaster.	Arrive Philadelphia.
Mail Express	12:42 a. m.	2:55 a. m.
Philadelphia Express	2:27 a. m.	4:25 a. m.
Fast Line	5:55 a. m.	7:30 a. m.
Harrisburg Express	8:10 a. m.	10:20 a. m.
Columbia Accommodation	9:00 a. m.	11:45 a. m.
Seashore Express	12:58 p. m.	3:15 p. m.
Johnstown Express	2:20 p. m.	5:05 p. m.
Day Express	5:25 p. m.	7:25 p. m.
Harrisburg Accom.	6:45 p. m.	9:45 p. m.

The Frederick Accommodation, west, connects at Lancaster with East Line, west, at 1:35 p. m., and runs to Frederick. Hanover Accommodation, west, connecting at Lancaster with Niagara Express at 9:45 a. m., will run through to Hanover daily except Sunday.

Harrisburg Express, west, at 7:40 p. m., has direct connection to Columbia and York.

The Fast Line, west, on Sunday, when flagged, will stop at Downingtown, Coatesville, Parkersburg, Mount Joy, Elizabethtown and Middletown.

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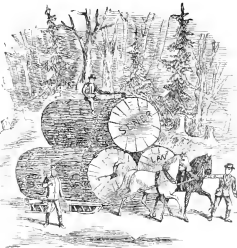
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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., JUNE, 1884.

Vol. XVI No. 6.

EDITORIAL.

JUNE.

"But e'er the mind could fully scan
The beauties of the maid,
A stately and majestic dame
In death her cold form laid,
Then with her golden wand she struck
The blossoms from the trees,
And from the sunny plains she fan'd
The torrid summer breeze—
The feather'd songsters of the vale
Joined in their tuneful lays,
The lambskins on the mossy lawn
Engaged in vernal plays—
She bore a pearl vase fill'd with fruit
Of summers early moon,
Her robes of tissue, and her mien,
Betoken'd "smiling June."

This is the sixth month of the year by common consent among Christian nations and peoples. It was so named by the Romans, from the festivals given this month in honor of *Juno*, the daughter of Saturn and Ops; the sister and wife of Jupiter; the Queen of heaven—mythologically speaking—and the guardian deity of women, especially married women.

"He, in delight
Smiled with superior love; as *Jupiter*
On *Juno* smiles, when he impregus the clouds
That shed May flowers."

Among the Saxons it was called *Hay month*, or hay-month, the month in which the hay was harvested in certain favorable localities, and when the sun enters the sign of Cancer. It includes thirty days. The Latin name is *Junius*, from *Juno*, because it was sacred to that goddess; German, *Junii*, from the genitive *Junii*; French, *Jun*; Prussian, *Jun'h*; Spanish, *Junio*; Portuguese, *Junho*; Italian, *Giugno*.

According to almost universally acknowledged authority in the Middle States, the kitchen-gardener at least, will, during this month be mainly occupied in cultivating the growing crops. The rapid growth of the various kind of weeds at this season of the year, will remind him of the necessity of timely and trenchant exertion, in order to subordinate them to his interest. In order to do this effectually and profitably, it does not require the excessive labor it did half a century ago, as the inventive genius of the present generation has devised many helps in the form of appropriate implements. If the "slow-coached" farmer or gardener will not avail himself of the use of these, or utilize others of equal value, he deserves to be "hard-worked" to the end of his days, without being entitled to much credit therefor. Perhaps, in nine cases out of ten, when the husbandman is compelled to work so very hard, so early and so late, it is because he works too much with his hands, and not enough with his head.

Of course, a good many vegetables which were planted early in the season, will now be more or less exhausted, this is therefore the month in which to plant for a succession in crops, especially peas and bunch-beans, and

those already in growth may now be thoroughly cultivated. *Beets*, *cabbages*, *broccoli* and *celery* may also be thinned or planted out. *Cucubers* and *sugar-corn*, may also be planted for crop successions. *Endives* and other salad plants may be sown for later use. Many years ago we were quite surprised to find a fair supply of green peas, beans and corn in the New York market, near the end of October. Since that period crop successions have become more common, especially in the vicinity of large cities, but the matter is still almost in *stet quo*, in the great county of Lancaster. Green peas, beans and cucumbers are familiar things in London and Paris in midwinter. It is true, that canned fruits and vegetables now supply the place of those cultivated out of season; but they are still not so fresh, so crisp and so normally flavored, as those gathered off the stocks and vines, especially those which mature in this genial month of June and July.

ENTOMOLOGICAL NOTATIONS.

The pest known as the curculio is already making sad havoc among the young fruit of plum and apricot trees. The little destroyer is about the size and has the appearance of a black ant. It cuts a long slit in the fruit and there deposits an egg. This soon develops into a worm, which rapidly destroys the fruit. Mr. C. E. Graybill has collected some of the curculio in a vial, and most of those who have seen them had supposed them to be black ants.

The above paragraph we find in the Columbia news column of the *New Era* of May 19th, and we think the writer of it is on the wrong track, when he says the curculio "is about the size and has the appearance of a black ant." The curculio that infests the apricot, peach, cherry, apple, quince, etc., has no such appearance; besides, the size given is very indefinite, as black ants vary very much in size, from a sixteenth to a full inch in length. No one that had ever seen a curculio, could, by any possibility, confound it with a black ant. The genus *Curculio*, which is now the type of the family *Curculionidae*, includes about fifteen hundred different species, and did we not know that some of these species do bear a resemblance to a black ant, we should pronounce the above paragraph a most magnificent specimen of "Moonshine;" as it is we would thank Mr. C. E. G., or the writer of the above, or any one else, to send us specimens of insects that resemble black ants, and that "cut long slits in the fruit." What is popularly known as the *Curculio* does not cut a long slit in fruit at all, but a short, crescent-shaped slit, and from the peculiar articulation of the head and thorax it is doubtful whether it could make any incision at all except a crescent-shaped one.

As "most of those who have seen them supposed them to be black ants," it is possible that they are black ants: for, it is a very common thing for black ants, and also ants of other colors, to ascend trees, shrubbery and flowering plants, to lap up the saccharine

exudations, which are secreted by the young leaves and flowers. Moreover, there are various species of *Aphids* (plant-lice, ant-corns) that infest fruit trees in the spring of the year, some of which are also black, and resemble an ant much nearer than they do a curculio, and these are often herded by the ants, which lap up their sweet excretions. It is about time that "the curculio" had a more familiar recognition, and a more certain identification.

Technically restricted, the aforesaid "Curculio," or "Snout-beetle," or "Plum-weevil," or "Little Turk," or any other name that people may choose to give it, is a *Conotrachelus*, and, by way of distinction, *C. neuglauri*, there being about twenty species of that genus; so that in referring to it specifically, the definite article is entirely out of place, there being about one hundred genera now belonging to the old Linnean genus *Curculio*; and it is doubtful if we have a single species of the original genus in the United States.

No, the *Curculio* is no more like a black ant—and for the matter of that a black weevil, either—than Hyperion to a Satyr;" therefore, the writer of the above-quoted paragraph, will please revise it.

The most expressive English name for the plum curculio is a "Snout-beetle," because, as a family, these insects are distinguishable from all other beetles by the front portion of the head being more or less extended in the form of a snout, at the end of which the sharp cutting forceps, or jaws, are located, and the species that in times past, and now has been and is so destructive to the plum and peach may be distinguished from all North American snout-beetles by having on the centre of each wing cover an elongated black shining hump, and behind these humps there is a more or less conspicuous yellowish band, marked in the middle with white—sometimes the whole band being white, or whitish, The abdomen is united with the thorax by its whole base, whereas in ants this union is by means of a peduncle or slender stem; yet so long as in some species of wasps, very dry distinct. On the whole, when the feet and snout are drawn in close to the body, and the insect "plays possum," it resembles a small dried fruit-bud, and not much unlike it in size and color, the whole animal being barely a quarter of an inch in length. So much for the "curculio."

THE SOLDIER BEETLE.

MOUNT JOY, MAY 19, 1884.
I enclose an insect which some call a "Chinee," or "Chinch-bug." It is said to be the bug that sometimes destroys the wheat crop in the far West. We read the *Daily New Era*. If you have time, please give us the proper name and history of the new comer. A. G.

The insects alluded to in the above note were duly received, "alive and kicking." They are not bugs at all, they are beetles; nor are they "newcomers." We have known them these five and forty years. The "chinch" is a true bug, the most familiar type of which is the "bed-bug." These insects are some-

times called "soldier beetles?" they belong to the *Leucophaea*, or "fire-fly" family, in the order *Coleoptera*. They are carnivorous in their feeding habits. The larvae live under ground and feed on the larvae of other small insects, snails, worms and whatever else of an animal nature they can capture there.

They are the *Telephorus colaris* of Le Conte, and appear every spring and summer, especially during the months of May and June. It is their nuptial season, when the sexes meet, profligate and lay the foundations for the next year's brood. See how deftly they run over vegetation and manipulate their antennae, in search of each other, or animal prey of some kind. We have seen numbers of them attack a pretty large garden snail, and eat him out of house and home. "Chin-chugs do not act so;" they maliciously stick their beaks into vegetation and suck out its juices. They differ most from bed bugs, in habit, from preferring vegetable juice to animal juice. Indulge in no prejudices or anxieties about these Telephorans; they will do no harm and may do good.

THE COLD WAVE.

The cold wave from the Lake Regions, predicted in the "Weather Predictions" of Wednesday, May 28th, came all too soon. We tried to sound a note of warning, by calling special attention to the fact; and, while we happen to know that some saw the warning in time and heeded it, others were not so fortunate, and will consequently very likely suffer.

At and in the vicinity of New Holland water was frozen not only in small vessels, but on water troughs and on small bodies of still water.

At and in the vicinity of Quarryville frost was visible in many places, and there, too, ice was formed on vessels.

A report comes from Piquette that tobacco plants were badly frozen in that township. Certain it is, nothing is much more susceptible to the damaging effects of frost than young tobacco.

In the northern and western sections of the county, while there were slight frosts in some low lying lands, as a rule there was less frost than in other portions of the county, the land lying higher and dryer for the most part. In the tobacco-growing regions of the county (they grow it everywhere, but in some sections to a greater extent than in others) there must have been considerable damage, if there was any considerable amount of frost.

How completely the meteorological phenomena of certain districts of country repeat themselves is strikingly evinced by "the cold wave" above alluded to which we clip from the NEW ERA, of Thursday (29th) since it recalls a sudden and intense "cold snap" we had in Eastern Pennsylvania just fifty years ago, in the month of May.

Early in the month of May of that year (we cannot recall the precise day, but feel very certain it was between the first and the fourth), we were a passenger in a "horse-car" on the Pennsylvania Railroad, from Philadelphia to Columbia, the then terminus of the said railroad. We left Philadelphia about sunrise, and arrived at Columbia about 5 o'clock in the afternoon. Relays of horses were in waiting about every ten or twelve miles, and at every horse-station, during the early part of the day, we found considerable quantities of ice, and the people making loud complaints about frosted garden vegetation. The weather was exceedingly cool, and trav-

eling in unheated carriages very uncomfortable, and there was a heavy frost on the succeeding night, which conspicuously manifested itself wherever there was shallow water, and at dripping pump-beds, necessitating much replanting of field and garden products. Subsequently we had sundry cold snaps—one at least as late as the 4th of July, but we cannot recall one of the same magnitude nor yet that occurred in the month of May. It came and went again without leaving any very deep impression upon human memory, and it no doubt will be the same in this case.

THE COMING AGRICULTURAL FAIR.

The premium list for the agricultural fair, to be held at McGinn's Park, on September 1, 2, 3, 4 and 5, is now in the hands of the printer, and from a hasty glance at it in the job department of the *New Era* we have reason to believe that, if the fair is not a success, it will not be because of the absence of liberal inducements to exhibitors. Horse racing and bicycle racing will be among the features of the occasion, and it looks now as though Lancaster county might win back some of her old-time glory in the direction of big agricultural exhibits and all the other features going to make up a successful fair.

Let it come and go, if the people will have it so—and it seems that they will—for good or ill, (indeed we could not help those rhymes, they just came of themselves.) There is a certain something in the mental and physical organization of the average man and woman that annually needs ventilation, and agricultural fairs and other kindred gatherings furnish the necessary safety valve to blow that something off. We have been too incessantly engaged in our secular occupation for the past six months, to take a hand in any outside enterprise, however creditable it may be, hence we are not as well informed on the subject as we perhaps ought to be; nevertheless the above paragraph, which we clip from the *Era*, seems to indicate that the event alluded to is a foregone conclusion. Projecting, concealing, programming and conducting those exhibitions, uncompensated, demands a little more patience, self-denial and persevering energy than those who practically cultivate the soil can well afford to give. Hence those who care nothing for fairs feel no loss by their absence, and those who do interest themselves can enjoy such gatherings all the better by feeling none of the responsibility devolving upon them.

Perhaps the subject of agriculture would be best subserved by dividing it into two branches—agriculture in *fun* and agriculture in *earnest*; or, in romance and reality, or poetry and prose. There are preponderating masses of the funny, the romantic and poetic sides of the question involved; and these, perhaps, will be on hand in the greatest and most liberal quantity.

GRAPE-LEAF FLEA-BEETLE.

STRASBURG, June 4, 1884.

DR. RATHYON.—Dear Sir: I mail you today an insect that is entirely destroying my grapes, and as yet I have failed to destroy it. Please give me his name and some method of destruction, and I shall be exceedingly obliged.

Yours, A. M. HICK.

The infested grapeleaves came safely to hand by mail, and the insects were alive and healthy.

They are the *larva* of the "grape-leaf flea-beetle" (*Crepidodera chalybea*) and when very numerous, perhaps the most destructive to the foliage of the grape of any that is known. Early in spring, before there are any grape-leaves to feed on, the beetle comes forth from its winter hibernation, and then feeds upon the leaf and fruit buds of the grape, and is therefore capable of doing much damage. Jarring the vines of a cool morning, and gathering the blue and green beetles, at that season of the year, is then the only remedy. Scattering unslaked lime under the vines early in spring is said to kill them in the ground.

Their nuptial season having come they busy themselves about profligation and perpetuation, after which the females deposit their yellow eggs on the under sides of the young leaves, and from these eggs are hatched the grubs which are now destroying the foliage of your vines. An application of whale oil soapsuds, liquid Paris green, (a teaspoonful of good green to a gallon of water) or a decoction of tobacco, thrown on the vines by a garden syringe, are now the most effective remedies. After the brown worms, now on the vines, mature, they will go into the ground and become changed to beetles which will come forth later in the season and attack the leaves again, but these are not quite so bad as the *larvae*. When autumn approaches they will go into the ground or elsewhere and hibernate until next spring, as stated above. When they are in the ground lime, lye, or some other corrosive substance are the only remedies that can be applied to the soil. They may be usually found in the debris under the vines, but they also are found in other contiguous places. From causes not clearly known they are more abundant some seasons than others, and are capable of serious injury.

PHILADELPHIA, May 29, 1884.

DEAR SIR: I have received from my place, in St. Mary's county, Maryland, a specimen of a blight, which attacks, apparently, only where there is young fruit, and the whole of the young orchard. Under the leaves may be found many of the insects I enclose. As I am recently a member of the Horticultural Society, I consulted Mr. Satterthwait. He recommended you as one who would probably be able to give some information, as he did not know anything about the matter himself, never having met with the disease. If you will be interested, would you kindly give some information. Yours,

JAS. S. GILLIAN, M. D.,
6008 Belmont street, Philadelphia.

Letter and contents duly received, but it would be difficult to convince us that the three large black and yellow Hymenoptera, are the insects which you have to fear.

We found half a dozen specimens of light brown "plant-lice" (*Aphids*) on the young fruit, but whether they were the cause of the "blight" we cannot say. Ordinarily, these insects are capable of blighting anything they attack in large numbers.

Usually where plant lice are located there will be found more or less "honey dew," and this attracts ants, bees and wasps, and it often occurs that the presence of these insects in great numbers work an injury to the leaves and fruit, upon which this honey dew is discharged; because, the insects feeding upon it,

often scrape and scarify the surface of said leaves and fruit, through which it becomes discolored and withered.

Again, there is an exudation of a saccharine mucilaginous substance secreted by flowers and very young fruit, about the time the former are expanding, and the latter are forming, which attracts honey loving insects, and these scrape up and lap this substance so closely that the tender skin becomes abraded and discolored. Some years our White Peonies have been rendered unable to expand their flowers through the presence of a multitude of insects which feed upon this mucus, which is most abundant just before the flower bursts from the embraces of the calyx, or are partially blown.

The three "wasps" enclosed, are fossorial in their characters—that is, diggers—and the larvae are said to be parasitic on the bodies of "grub-worms," under ground. They belong to the genus *Tiphia*, or are allied to it. Exactly when and how the females deposits their eggs on the grubs is not very clear, but sufficient is known to base a pretty clear conjecture. The adults feed on honey, or pollen, or both, and are often seen on flowering plants, during June, July and August.

"CORREIENDUM."

There are circumstances under which the excessive praises of a friend may be more compromising to our reputations than the criticisms of an enemy. An error which inadvertently crept into the proceedings of the April meeting of the Linnaean Society seems to involve a case of this kind. The words "obtained by myself," in parenthesis, in the third line from the bottom, of Prof. Stair's short paper on the collection of *Hieracium carolinianum* is an interpolation by the reporter in order to enhance the credit due to the discovery of this plant in Lancaster county. When Prof. Porter found a specimen of the above plant twenty years ago, it was not regarded as a new species to the county, but was thought to be *H. foliosum*, or *H. groenovi*, or *H. paniculatum*, or a variety of one of these. Hence, when Prof. S. subsequently found it and Prof. Gray identified it as *H. carolinicum*, it therefore was new to the county, or at least the knowledge of it was new. When Prof. Stair says that Dr. Gray got Dr. Porter's specimens recently to assist him in the study of the COMPOSITE, he did not refer to this plant specifically, but to all of Dr. Porter's specimens relating to the subject; therefore, the interpolated words "obtained by myself," placed Prof. Stair in a most aggravatingly false position; and yet there is nothing more apparent than that the reporter did not intend to place him in that position; it was a sort of scientific blunder. There is a vast difference between *finding* or *collecting*, and the *discovery* of a plant; and yet when qualified by a reference to the locality it may be quite proper to use the word *discovery*, although the object may not be new to science. Divest the article of the parenthesized words altogether, and still a superficial reading of it might lead one to the conclusion that Dr. P. had sent Dr. G. only his specimens of *H. carolinianum*, when, in reality, Prof. S. meant all his plants of that genus or family.

EXCERPTS.

ALL kinds of spice dust are good to mix with the soft food for poultry, such as pepper, mace, cinnamon, cloves, allspice and ginger. Such a refuse dust can easily be procured at any spice factory.

If baby is hoarse at night, take a small piece of oil silk, rub a little lard or animal oil of any kind over it and fasten it next his skin, over the chest. It may be pinned with small safety pins to his wrapper.

WHEN lemons are cheap it is prudent to lay in a good store of them, as they will keep well by running a fine string through the nib at the end and hanging them up in a dry place, taking care that they do not touch each other.

THE mangers for cattle should always be low. Nearly all of the mangers and racks of our farmers are high. When a cow has to reach up for food there is a tendency to abuse the throat and neck muscles. There are several diseases that arise from this very cause.

A STEER that weighs 1,000 pounds is worth twice as much as one that weighs 500; but a milk cow that produces 200 pounds of butter is worth much more than twice as much as one that produces 100, for the latter eats as much as the former and gives little or no profit.

If your windows are narrow, or even if they are of the usual width, and you feel that you can not afford double curtains, single ones may be draped so gracefully that they will answer admirably. They should not be looped back with ribbons, but be pinned or tacked back in several places. Begin to tack or pin back quite high, or you cannot prevent a drawing or awkward appearance lower down.

A crop of corn is essential on all farms upon which stock is kept. Being extremely rich in carbon, it not only provides nourishment for growth but produces heat and fat above all other cereals.

ACCORDING to Dr. J. C. Peters, it is illth that causes most of the diseases of domestic animals. He mentions particularly the habit of allowing bedding and manure to accumulate under the horses and other animals in the stables. The impure air thus generated is peculiarly well adapted to injure the health of the animals compelled to breathe it.

THE Jersey cow Princess 21, which gave the largest yield of butter ever produced, was induced to do so by careful management. She was given walking exercise daily, and her appetite was stimulated in every possible manner. Her yield was remarkable, being twenty-seven pounds and ten ounces of butter in one week, or nearly four pounds per day. As her yield of milk in twenty-four hours was twenty-three quarts, it required only about six quarts of milk to each pound of butter. The milk was but little inferior to pure cream.

As a sample of the profits they make in Southern Illinois, Mr. Endicott owned up that he made, clean profit, \$1,200 this year from twelve acres of strawberries and grapes. This, he said, was, after the picking and crates had been deducted, the net profit; and some of the berries, Sharpless, were so poor a crop as to yield only about a dozen crates marketable fruit per acre. His berry for money is the Crescent, with the Captain Jack

or Wilson. The grapes, Ives, pay an annual profit of from \$200 to \$300 per acre, with good culture.

IN order to produce nearly twenty-seven pounds of butter in a week Princess 21 consumed thirty-five pounds of clover hay, forty-eight pounds of bran, thirty-five pounds of carrots and beets, twelve pounds of oatmeal, six pounds of corn meal and six pounds of oil meal. Such was her daily allowance, which demonstrates that cows which produce largely are very heavy feeders. The food consumed was nearly three times as much as that required for a common cow, and the profits are mainly due to the fact that the work performed by her dispensed with the labor and care necessary in order to provide for a large number instead of a few.

A WRITER in the *Horn* writes says? "Most soils need salt. Perhaps a word here in reference to salt will not be out of place. I might say it is indispensable to plum and pear trees, that needing from three pints to two quarts to each tree, or about six bushels per acre each year, sown broadcast and not put in large quantities against the tree; it had better be applied at different intervals. In a neighborhood containing large orchards the owners were quite discouraged about their apples. As they were very wormy they were all more or less infected. One of the owners resolved to kill or cure, and, owning a meat market, he had a large quantity of old salt and brine. He applied it in the spring to the orchards in quantities seemingly large enough to kill all the trees. Yet his trees did better than usual, producing a large crop of sound apples, while his neighbors were as bad as ever."

AN asparagus bed may be made to last twenty or thirty years, the plants are never infested with insects, and the crop never fails.

CLOVER hay is much better for milk cows than timothy. It produces a larger quantity of milk, and also of a better quality. All butter makers know how yellow the butter is which is made from the milk of cows fed on clover hay.

THE *American Agriculturist* gives the wise advice to farmers not to strike matches for any purpose in the barn. If the lantern goes out it is better to feel one's way out than to run the risk of burning the barn down with its valuable contents.

PUTTING rings in pigs' noses to prevent rooting is a needless precaution where the animals are to run in an orchard of bearing trees. What rooting is done under such an orchard will not destroy any valuable grass, and the trees and fruit will be all the better for it.

It will surprise old-fashioned poultry growers to learn that the common hawk is regarded as a valuable bird. He destroys 100 field mice for every chicken, and if there is a fair amount of shrubbery around the henyard very few chickens will be lost from his depredations.

THE youngest cow in the world, to our knowledge, belongs to Mr. G. M. Jones, of Cottage Grove Farm, Berkeley Heights, N. J. The Jersey Heifer, Galaxy's daughter (20,000), born on the 15th of December, 18-2, had her

first calf March 17th, when she was only one year and three months old; another heifer, belonging to the same gentleman, came in when only one year and five months old.

O. S. BLISS pays a just compliment to home butter-making when he says that he thinks none will live long enough to see as good butter made from any co-operative establishment as is made in the best private dairies, and he expects to see the best and most enterprising dairymen constantly drawing out of combinations and returning to dairy practice. There can be no question that gilt-edge home-made butter is the finest in the world.

A METHOD of improving India rubber and gutta percha by the addition of a distillate of birch-bark has lately been brought out. Distillation of the outer layers of the bark produces a dense, black, gummy matter resembling gutta percha and capable of resisting the action of air and of the strongest corrosive acids. It is claimed that the durability of India rubber or gutta percha is greatly increased by the addition of a small quantity—a twentieth part is sufficient—of the birch-bark gum.

M. DECOURNEAU attributes the cracks in common mortars and cements to the uncombined quicklime which they contain. In order to neutralize the lime, he uses a very fine siliceous powder mixed with diluted nitric acid. He thus obtains mortars of much greater, more uniform and more lasting resistance than those hitherto used. The application of this method has given excellent results. Some made by the process may be worked like the natural product.

M. GLEY, a French physiologist, has been investigating the effects of brain work on the circulation of the blood. In his experiments he has found that when he applied himself to a difficult subject, upon which he had to concentrate all his energies, the rhythm of the heart was far more accelerated than when considering some matter with which he was familiar.

A PECULIAR phenomenon occurred in August on a mountain of Rhenish Prussia. In the side of the Brenneke Berg a pit of about a hundred square yards in area suddenly opened, emitting a great volume of flame and engulfing a house and its inmates. It is believed that the cause of the catastrophe was the ignition of gas arising from a petroleum vein in the depths of the mountain.

THERE are so many breeds of sheep and so much said in favor of each that some men may delay, not knowing which to take, and others may be led to believe that some one breed is the one and neglect a good opportunity to purchase some other. But if a farmer will select from any flock he can find a few wide-breasted, broad-backed, deep-bodied, not too long-legged sheep, and put a Southdown ram with them, he will not make a very great mistake. This is John Gould's advice.

EXPERIMENTS to determine the changes of color produced in flowers by ammonia have given these results: Over a dish of ammonia was inverted a funnel, in the tube of which were placed the flowers experimented upon. Blue, violet and purple flowers were found to change to a beautiful green; deep red flowers

to black, and white to yellow. These changes are most striking when the flowers have several different tints, in which the red lines are turned dark, the white yellow, etc. If the flowers thus changed are placed in pure water they retain their new colors for several hours, gradually resuming their original tints after that time. Another observation made in this connection is that the flowers of the aster, which are naturally inodorous, acquire a very agreeable perfume under the influence of ammonia.

A GOOD garden always pays the farmer, as with proper management the work can be done at a small expense. Farm business, in the spring, is always pressing, and the farmer is generally short of help. Much, therefore, depends upon the mistress of the house, who can superintend the management of the garden, to some extent. If women of the household would spend more time in the open air, in some healthy exercise, they would add much to their own happiness and health.

There is a farmer who is Y's
Enough to take his E's,
And study nature with his I's
And think of what he C's.

As hears the chatter of the J's
And by each other T's;
And says that when a tree D K's,
It makes a home for B's.

A pair of oxen he will U's,
With many haws and G's;
And their mistakes he will X Q's,
While ploughing for his P's.

In raising crops he all X L's,
And therefore little O's;
And when he hoos his soil by spells,
He also soils his hose.

COMMONPLACE EXPERIENCES IN NATURAL HISTORY.*

"Desultorily Dotted Down."

When I was a "small boy"—about five and sixty years ago—my mother sent me to a village grocery to fetch her some vinegar. Returning homeward I met another "small boy," and in order to have a "small talk" with him, I sat my vinegar down upon the ground, it being in an open tin vessel. I have no recollection what the subject of our conversation was—probably as to the best locality to obtain "fish-worms"—at all events, on looking into the vinegar I was surprised to discover that it was teeming with thousands, perhaps tens of thousands, of minute undulating worms, or "ceels." I called the other boy's attention to it, and he also saw them. I immediately returned to the store and informed the grocer that his vinegar was full of worms, and in attempting to demonstrate it to him I utterly failed. He became angry, threatened to box my ears, and ordered me out of his store. I then took it home and disclosed the same fact to my mother, but failed to convince her also. Neither could I convince any of our neighbors, somehow I could not bring them into focal rapport with the vinegar, and I was deemed a falsifier or an idiot. I am not sure that that was precisely the language they applied to me, but it amounted to that. I have no recollection of ever having seen those *animalcules* in vinegar

—save on one occasion—after that event, with the "naked eye;" but very frequently, with the aid of a common pocket microscope. But I had no access to such an instrument then, even if there had been one in the village. Notwithstanding the ridicule and the jeering I was subjected to, nothing could shake my confidence in the fact—that I had seen the little eels in the vinegar. Those *animalcules*, or "ceels" as they are frequently called, belong to the genus *Tribrio*, and there are many species of them. They are named *Tribrio* from their vibrating or undulating movements. They are included in Cuvier's second order of INFUSORIA called HOMOGENA. INFUSORIA comes from the Latin *infusum*, because they are usually found in liquid infusions, when left exposed to the air for a time; and because they are alike in principal and elemental structure the lesser group is called *Homogena*. But, they are not found in vinegar alone, but also in various infusions in paste, in purulent mater, and even in the tartar which collects on teeth.

Now, in citing this commonplace phenomenon, I desire to illustrate the advantages of giving some attention to natural science in youth before the mind is encumbered by the cares and responsibilities of maturer life, because many things can be detected by the youthful eye that would be entirely overlooked at a more advanced period. Moreover, the practical experiences of youth—when there is a love for science—"come to stay," and can be called into requisition at almost any period of life, if the mind has not become perverted. I will remember when Josiah Holbrook—the advocate or founder of the Scientific Lyceum System in Lancaster county—inoculated me and many others with the "mineral fever." The small boys of our excursions had greatly the advantage of the adults, or even many of the larger boys, in detecting the smaller objects—such as loose crystals, fossils, shells, arrow heads, &c.—simply because of their diminished height these objects were brought more immediately within the focal range of their vision.

In this connection, but far above the "Vinegar-worm" in organic structure, I must introduce the "Hair-worm," because about this period of my boyhood I noticed the first specimen swimming in a small pool on a public roadside. I secured it and took it home, when the "wisdom-chest" of the neighborhood very gravely pronounced it a "living horse-hair," and stated that any hair in the mane or tail of horse would turn into a snake by "soaking" it in water for an indefinite time. I conveniently believed it at the time, and so did everybody else with whom I was acquainted; but, years afterwards, when there arose many doubts about it, I attempted to animate a horse-hair by immersing it in water, and after an experience of six months I abandoned it as altogether unfeathered, for my subjects still remained lifeless horse-hairs. There are different species of these Gordians, or Hair-worms, but our most common species is the *Gordius equatus*. The specific name is derived from the circumstance of their being found usually in water, but there are species that are frequently found near the centre of solid heads of cabbage, and one specimen that came under my observation was found in the

*Read by Dr. S. S. Rathvon at the May meeting of the Lancaster Society.

seed cavity of an apple. The generic name comes from the "Gordian Knot"—cut by Alexander the Great—because of the habit they have of tangling or knotting themselves up, making it almost impossible to straighten them out.

These animals belong to the ANNELEDS, which compose the first class of *articulated* animals, and the only class that has red blood. Hence, in Cuvier's classification they stand before crustaceans, spiders and insects. Their most singular characteristic is that they pass the earliest part of their developmental period within the bodies of other animals. Notably in beetles and grasshoppers. About fifteen years ago I noticed a singular mortality amongst the grasshoppers in the vicinity of Lancaster, and upon investigation I found them infested by Gordians, from three to four inches in length, some of them protruding from one to two inches. The largest specimen I have ever seen was donated to the Linnean Society last summer. It measures eight inches in length, and was drawn from the body of a large beetle—from the description of which, I conjectured to be *Copris carolinæ*—commonly called the "Dor-beetle." The Linnean Society has also a female specimen in its possession that has a string of eggs attached to her body. The eggs being very minute, are drank in, or otherwise appropriated by animals, and the development of the *Gordius* takes place there. The history of the development of the Gordians makes slow progress, and is involved in difficulties. Nearly as much was known about them one hundred years ago as is known now. It was believed then that they were fatally poisonous, but that notion has been long since dissipated. It was also believed then that they were *really* animated horse-hairs, and that belief still exists, and will continue to exist, until natural science is practically made a department in our systems of education.

*** About two years earlier than the events alluded to, I had my *first* entomological experience, and it appears as fresh in my memory as it did the day on which it occurred. It was in the month of June, 1817, when I was a little over five years of age. My father led me into an open chapparel, a short distance from our house, containing dwarfed sassafras, paw-paw, locust, wild-cherry, and other trees and shrubbery, to show me the "Seventeen-year locust." There were thousands of them on the low plants within my reach. Unknown to him I captured perhaps a dozen of them which I put into my red-leather hat, and clapped it on my head. When I returned home and took off my hat the locusts were all tangled in the hair of my head, and my mother, and some of the neighbors who were present, indulged in a first-class terror; giving me a rough brushing, expelling the insects and tramping them under foot; of course, I did not know what it all meant, but I was subsequently instructed that they could, and would sting, and that their sting was fatal.

I do not propose to discuss the question—except perhaps incidentally—whether they can sting or *cannot*, whether they *will* sting or *will not*, nor whether their sting is poisonous or not. One thing I *do* know, that I saw and *freely* handled the "Seventeen-year Locust"

in 1817, in 1834, in 1851, in 1868, and if I live until June, 1885, I shall very probably see and handle them again; and I cannot say that I was ever apprehensive of being stung by them, at the same time, I would not positively negative their stinging power.

There are a great many errors extant in regard to the history and the habits of this insect. In the first place, it is not a *locust* at all. The United States, is perhaps the only country on this planet where the term *Locust* has ever been applied to it. Various species of this insect exist in every country on the earth, that has yet been explored; except perhaps the northern regions; but, I do not think that any species but our own, is in the habit of only making its appearance every seventeen years, (barring a species we also have, which makes its appearance every thirteen years.) Our seventeen year species is a *Cicada*—the seventeen year cicada," as contrasted with our annual or "Dog-day cicada," (the *cicada undulata*.) It is the *Cicada septendecim* of Linnaeus. When I was a boy, and for some time afterwards, and perhaps at the present day, a notion prevailed and may still prevail, that the *cicada* or "Locusts" burrows downward into the earth for eight years and a half, and then turns around and occupies the remaining eight years and a half in coming to the surface again. What would be the use in turning back at all? If it kept right on it would be just as likely to reach the other side of the globe. No, *it must bore food*, and those seventeen years are occupied in sucking the juices of vegetation—having been frequently found adhering to the roots of trees. They probably never go down much lower than the frost line.

Their song is not vocal—it is altogether mechanical—and is a sort of drumming, the males being provided with a pair of *tymbones* for that purpose. Except the occasional fluttering of their wings, the females are entirely silent; hence that ill-fated old cran.udgeon, Xenarchus, has written:

"Happy are cicada's lives
Since they all have voiceless wives."

The females usually deposit their eggs in the smaller branches of trees and shrubbery, and when this takes place among small trees in a nursery, that part of the tree or branch above the incision usually dies. The incision is made with the rasping ovipositor of the female, and as the operation requires considerable lever power, it is supposed she selects a branch that she can embrace with her feet, in order to get that power. It is questionable whether she could succeed at all on a flat surface. I have witnessed the operation and found it slow and apparently laborious. She could not alight on a human body or any other body and inflict an instantaneous sting like a hornet, a bee or a wasp. Neither could she inflict an instantaneous wound with her proboscis. A mosquito can't, a horse-fly can't, nor can any other suctional insect. It requires some time and effort to accomplish this. Hence the stories about their stinging people are doubtful.

It is of some importance that animals should be called by their appropriate names; and yet, outside of the pale of natural science, there is some confusion in the nomenclature

both of the *Cicada* and the *Locust*. Some years ago I received a newspaper from a town in Tennessee, in which the editor stated that the *seventeen-year Locust* had appeared in that vicinity, and was eating off the herbage and vegetation in general down close to the ground, and was creating a panic and threatening a famine in the land.

Now, so far as this relates to what has been wrongly named the seventeen-year *Locust*, the thing is utterly impossible. If it feeds on anything at all, in its brief period above ground, it must be in a fluid state, because it is entirely without masticatory organs; moreover they are not in the habit of setting on succulent vegetation to any extent, and then only temporarily. They would not deposit their eggs in such a plant, because it would wilt and die before the eggs were hatched. That frightened editor must have had reference to the *Rocky Mountain Locust*, or an allied species; which, in this locality, would be called a "Grasshopper." It is not at all surprising that the masses of the people should misname things when the same blunders are perpetrated by historians, and even lexicographers. If you look into Webster's Dictionary you will find the definitions of *Cicada* and *Locust* correct enough because they were given by a naturalist; but, in illustrating the latter the publishers have perpetrated a great pictorial blunder in representing a *Locust* by a *Mantis*, commonly called a "Camel Cricket." Although belonging to the same natural order (ORTHOPTERA) yet there is a wide difference between a *Mantis* and a *Locust*, both in structure and in habit. The *Mantis* is *carnivorous* and a *grasper*, hence its anterior feet are largely developed; but the *Locust* is *herbivorous* and a *leaper*, hence its posterior feet are largely developed—indeed there is more difference between them than there is between a hawk and a hen. In Ainsworth's Latin Dictionary the definition of *Cicada* is given as a *sauterelle*, or *balm cricket*: a *grasshopper*; *sauterelle* being the French name for grasshopper. Now, all these are ORTHOPTERANS, or straight-winged leaping insects, but the *Cicada* has no leaping powers whatever. The same dictionary defines *Locusta* as a *locust*; a *lobster*, a *mischievous insect*. The *Cicada* is a *Hemipterous* insect, because its wings are homogenous, they are all the same in form and structure, differing only in size; so you will observe that dictionaries are not always reliable in natural science.

The *Cicada* was known to the Greeks under the name of *Tittia*, or *Titris*, (this generic name being still applied to a group of *Hemipterous* insects), and they seem to have been the favorite of every Grecian bard from Homer to Anacreon. Believing "them to be perfectly harmless, and living only upon dew, they were addressed by the most endearing epithets, and were regarded as almost divine."

Thus sang Anacreon:

Happy creature! what below, can more happy live than thou?
Seated on thy leafy throne, summer weaves thy verdant crown,
Sipping o'er the nearby lawn, fragrant nectars of the dawn,
Little cares thou lovest to sing, tales of mirth—an insect King
Thine the pure immortal vein, blood nor flesh thy life sustains
Rich in spirits—health thy feast, thou art a demigod at least.

To further illustrate that the Greeks had a better knowledge of what a *cicada* really is, than that which exists in some localities at the present day, it is stated that notwithstanding their veneration for this insect, they nevertheless, made it an article of food, and considered it as delicious; and Aristotle says, that "the *larva*, when grown in the earth, and becomes a *pupa* is the sweetest." It has often been observed that animals of different kinds manifest a special fondness for the *larva* and *pupa* of these insects in our own times. Waiving their edible qualities altogether, the knowledge that they passed their larval and pupal periods in the earth, illustrates that they did not confound it with the grasshopper, because that insect, strictly speaking, has no larval or pupal periods; only corresponding transitions; all taking place above ground, its metamorphoses being technically regarded as *incomplete*.

Modern superstitions in regard to this insect are even more silly than those of the ancients. Even in my early days, some people regarded the appearance of the "17-year locust" as an indication of a terrible war, and they could unerringly point out a "W" on each of their anterior wings, not knowing that the zig-zag venation of the wings, was characteristic of the whole genus, only more distinct in some species than in others. Their "song," (which by the way, was greatly exaggerated by the Greek poets,) has by modern superstitionists, been contorted into a "P-har-ah," associating it with the destructive locusts of Egypt. I remember when I was an apprentice, how my master criticised "Riley's narrative" because he represented a locust by a big grasshopper. It was like the teacher who was discharged by the school board because he spelled "taters" with a *p*. *Locusta virgataria* is the migrating grasshopper of the Orientals.

My next experience in natural history was when a boy, about nine years old. For the first time in my life I noticed on a pansy plant, that grew in the corner of an enclosure, a singular "worm" transversely marked with black and green. When touched it threw out two yellowish tentacles near the head, which emitted a very disagreeable odor. I broke off the branch to which the worm was affixed, took it home and put it in a paper-box. Some days thereafter when I attempted to show my worm to some other boys, lo! it had disappeared and instead thereof, I found attached to the underside of the lid, a very singular object for which I knew no name, and therefore I called it a "thingumbob," after the manner of many older and wiser people, when they refer to an object of which they are unacquainted with the name. And just here at this point allow me to indulge in a digression. Many objections are made to the study of the natural sciences on account of their technologies, the Greek and Latin names bestowed upon natural objects, alleging that a treatise on natural history written in the English language should embrace only English names. This is all right so far as it goes, but it has its limit. Naturalists do employ English names in all cases where it is practicable, and where such names exist; but unfortunately many natural objects have no English names; and, in making an intelligent record of them they must receive such names

as will be understood by the whole scientific world, whether German, English, Spanish, French, Portuguese, Russian or any other learned nation; and Latin although "dead" is more universal than any other language. For instance the museums of the world contain over 100,000 species of "beetles" alone; and included in the class *Issecta* are more than 500,000 species; and taking the whole animal kingdom together the number cannot be much less than one million species. How far does the term "Pinch-bug" define the species of an insect? When we know that the whole 100,000 beetles are pinch-bugs. *Curculio*, is a scientific name, become popularized, but there are 2000 species of *curculios* in the United States alone. How many of these have received common names? There is the pea-bug, the bean-weevil, the grain-weevil, the rice-weevil, the apple-weevil or plum-weevil, and perhaps half a dozen others. The plum-weevil is a *comotrachus*, but there are at least 20 species of that genus. "Colorado potato beetle," or "ten-lined spearman" are surely longer names than *Doryphora decemlineata*, and it can be written much shorter than it can be pronounced. The Germans have a small beetle belonging to the Lady-bird family, which they call "Kugle kaeferbähnlicher Heckenblattkafer," but its name in Latin is *Chrysomela coccinuloides*, and there are hundreds of such instances in entomology alone.

But, to return to my story of the green and black worm. I could not imagine what had become of it nor how this "thingumbob" had gotten into the box—it seemed a lifeless form of something very odd. Some of the boys said they had seen such things before, others said I was mistaken, and others again intimated that I was lying. About a week thereafter when I intended to show the singular object to other boys, behold! I found the box occupied by a large black and yellow butterfly. But no one would believe that the butterfly had any relation to the other object in the box; moreover that was still there, although somewhat mutilated. About a year thereafter I found the same kind of a thing attached in the same manner, to the underside of a fence rail. I detached it, took it home, put it in a box, and in due time a similar butterfly was evolved. I had simply demonstrated the transformations of our common butterfly—*Papilio asterias*. I was convinced, but I could not convince others, because the very next *chrysalis* I confined evolved a wasp, nearly as large as our common papermaking wasp. This not only perplexed me but it discredited my observations with others. This wasp had dark, bluish, iridescent wings, and reddish brown body, feet and antennae. When I say, a wasp, I do not mean the insect that in the ordinary acceptance of the term is called a wasp. It belongs to quite a different family from the common wasp, although to the same order of insects. The real American wasp is a "hornet," the *Vespa maculata* of entomologists. What, in common language, has been named a wasp, is a *Polistes* and belongs to a different genus, although to the same family. The insect I allude to in connection with the butterfly, belongs to a very large family of parasites called *Ichneumonidae*, or "Ichneumon flies." Why they are called "Ichneumons," and what an

Ichneumon is, will be made manifest before I conclude this paper. I had often noticed a steel-blue wasp, and also a brown and yellow one, resorting to the margin of a mudhole, and there gather a pellet of mud adhering to it and attaching it to a large mass abating to a raft, accompanying the operation by a stridulating sound. These, by way of discrimination, were called "mud wasps." They were the *Sphex cerulea* and *maculata* of naturalists. I also noticed that they occasionally would bring a spider and push it into these mud-cells, from which it never attempted to escape, although it was not dead—only paralyzed. But I am getting away from the *papilio*, a genus that contains the largest, most highly colored species in the world. South America and the East Indies are remarkable for their fine species of *Papilionidae*.

Papilio is simply the Latin name of a butterfly, although this name is now restricted to a certain genus of butterflies. "The white cabbage butterfly," *Pieris rapae*, is not technically a *Papilio*, but at the same time it is a *Papilionidae*, because it belongs to that family of butterflies; just as Tom Jones is not John Jones, although he may belong to the Jones family.

When it is defined in a Latin dictionary that a *Papilio* is a "kind of moth that flits about lighted candles," the definition conveys an erroneous impression, because the *papillos* are strictly diurnal or day-flyers, and at night are in repose. Of course, I am not certain as to the species, upon which I made my first observations, but I presume it to have been *asterias*. This specific name seems to be altogether arbitrary. The *Asters* or starworts belong to the composite order of plants, but from the fact that *Papilio asterias* feeds exclusively on umbelliferous plants—such as parsnips, parsley, fennel, &c., I infer it was this species.

During the spring and summer months the female *asterias* deposits her eggs, singly or in small groups, on the leaves of their favorite food plant, and in due time these eggs are hatched by the warm sun. When the young first come forth they are nearly black, but as they increase in age and size, and cast off their skins, the party colors appear. In the worm state it is called a *larva*, which means a mask, because the insect that deposited the egg is then masked. By a previous preparation, and expert dissection, the pupal form may be detected within the body of the *larva*. After the *larva* has fully matured it is transformed into a *pupa*, which means a "puppet," or a babe wrapped in swaddlings. The terms *chrysalis*, *aurelia* and *nymphe* mean correspondingly the same, although the last name is more frequently applied to such insects as undergo their transformations in the water. The last transformation is from *pupa* to *imago*, because the insect is then in the image of the parent that deposited the egg. Many insects, perhaps all of them have parasites which prey upon them. Most of these parasites are very small and in many instances very numerous, but some of them are nearly as large as the host upon which they prey. The female parasite deposits one or more eggs in or on the body of the larva, which is in due time incubated, and the little worm then feeds on the body of its host. Sometimes the infested lar-

va dies in that state, but usually not before the development of the parasite. At other times the larva is transformed into a pupa, enclosing the parasite in the chrysalis, and subsequently it issues forth from the dead pupa. It was under these latter circumstances that my brown "wasp" was evolved.

Now, this parasitic wasp does not come forth from the pupa of its host in the orderly evolution which characterizes the transformations of the insect upon which it subsists—it cuts a round hole through the side, or anywhere else that it is most convenient, and makes its escape through that. It, without a doubt, evolves from its own pupa in an orderly manner, but it as it is freed from its own pupal shell it avails itself of the only means it has to reach the outer world. And here allow me to suggest that a writer in the *School Journal* for March, 1884, on the transformation of an insect, does not see "through a glass clearly" when he or she states that a *Polyphemus* moth evolves from its pupa case through a vest-like fold on the breast. I have always found the breast or *serena* of the pupa shell intact, and a dorsal suture or cleft through which the enclosed insect had emerged. Sometimes there are also lateral clefts near the point of emergence, and there are also frequently transverse clefts, but they are all dorsal—that is, on the back of the thorax. In some small insects which have a delicate pupal covering, we very often find the whole anterior end of the pupa pushed out. It often occurs in the Papilions or butterflies, that after the escape of the insect the suture closes again, and but for the light weight and color, a novice could hardly tell whether the *imago* had vacated the premises or not. Under "durance vile" this orderly process of development may possibly be reversed, but that is not the normal process.

The brown parasitic wasp referred to I long subsequently learned was named *Trapsus fulvus* and belongs to a very different order of insects from that of the butterfly upon which it preys. The generic name is from a Greek term—*Trogl*—which means a cavern or hole, and the specific name relates to its color, which is a light brown or rust color. It is not the largest, but it is one of the largest of our parasitic species, and very properly called an "Ichneumon fly." These Ichneumons perform a very important function in the economy of nature. Some of them are an inch and a-half or more in length, and some of them are so very small that they find sufficient to subsist upon and complete their development within the cavity of an insect's egg that is barely visible to the naked eye. I presume that you are all acquainted with the Egyptian Ichneumon, which belongs to the class *Mammalia*, and to the order *Carnaria* and family *evantora* of Cuvier, of which there are many genera and species. The typical Egyptian species was named by Linnaeus, *Vicerra ichneumon*; but CUVIER refers it to genus *Mangosta*. These animals are celebrated for their combats with the most dangerous serpents, and for having led to the discovery of a plant (*Ophiocoria mangosta*) as an antidote to the venom of those serpents. They are particularly destructive to the eggs of the crocodile, to lizards, to rats and mice, to serpents of all kinds, and they are vigilant in their pursuit of them, killing a hundred times more than they consume;

but the story of their entering the throat of the crocodile in order to destroy it is quite fabulous, although they do frequently destroy the young or immature ones. Notwithstanding this bloodthirsty characteristic they are said to be capable of domestication, become playful, and learn to recognize their dominions and their masters; but who betide the snake, lizard, rat, mouse or other tabaco animal that visits the house. A distinguished writer says: "It presents a lively image of a benevolent power perpetually engaged in the service of man, by destroying those noisome and dangerous reptiles which are the pests of hot and humid climates." When we contemplate the fearful statistics of the deaths by serpents in the East Indies every year, we may imagine what it would be if it were not for the ichneumons. Now, these are approximately the characteristics of our parasitic, or ichneumon flies, in their relations to the insect world, and to the human family. They are constantly on the keen lookout for some insect or insect larva upon which, or in which to deposit their eggs, and an insect so infested will never be able to perpetuate its species. There is no *aitus* into which these insects would deposit their eggs save a living one. If the host were to perish before the maturity of the parasite the latter would also perish, if it could not betake itself to another living body. How nimble and intelligent they seem a moment after they come into this outer world. I have witnessed a small species (*Microgaster congregate*) to the number 100 evolving from the body of a single "Horn-worm," (*Mora, silva carolina*) and after seemingly leaving me for a moment they appeared to indicate that I need not trouble myself in instructing them in the ways of the world, for they knew all about it. A redundancy of the insect population is always annoying and often very destructive, but no human calculation can estimate what it might be if there were no parasitic insects, and especially no *Ichneumon* flies.

One more remark and I have done for the present. I am often asked the question—Why it is, that a certain insect only appears every *seraten* years, whereas other species of the same genus appear every year. Well, I cannot tell, any more than I can tell why it requires the "Century-plant" so much longer time to develop its bloom, than it does a cabbage plant. Both are perhaps physiological questions, contingent upon physical development.

On one occasion I procured and reared to maturity, about a dozen specimens of *Papilio asterias*, in order to get good specimens, all of which transformed to *chrysalids* within about 12 hours, occurring during the last quarter of June. About the middle of July following five butterflies evolved, and about a month later three others. Of the remaining four one evolved in September, two near the end of May in the following year, and the last one in the month of June next thereafter. As the conditions were all the same, so far as I could recognize them, I cannot explain this irregular development. It may have been a necessary provision, under the circumstances, for the perpetuation of the species, and it may have been contingent upon their artificial surroundings.

Mr. John Best, of this city, on one occa-

sion, brought me a wood-boring beetle (*Hylotrupes*) that must have been in the pine wood drawers and bottom of a sewing machine box for a period of fourteen or fifteen years; for, it was *heard* down to only a month previous to its ultimate discovery. He possessed the machine about sixteen years, and the eggs or larvae must have been in the pine wood before the manufacture of the box, the outside of which was hard well-seasoned walnut. How long it would have required for the development of this beetle in a state of nature is more than I can say, but I had been in the habit of capturing the same species of beetle annually, in the month of June, for many years. These are physical anomalies that require the deepest philosophy to solve; and yet they are *effects* that cannot possibly be independent of a *cause*. From this it will be observed that there is yet a vast field of research that is open to exploration and investigation; and this must be explored and investigated by the rising generations, and they cannot begin the work too soon, nor pursue it too zealously, nor too perseveringly.

Now, from what I have here narrated, you cannot draw a legitimate inference that I inherited a predilection for natural science; nothing of the kind. I do not think I had ever heard the terms, and I am sure I would not have known what they meant if I had. I am quite sure I had never heard the term "entomology" or any other kind of "ology;" and I am not sure that I had even heard the term "insect." Such names as hornet, wasp, yellow-jacket, bumble-bee, honey-bee, butterfly, "snake-doctor" (for dragon-fly), blow-fly, shad-fly, cricket, grasshopper, "wooly-weaver" (for ant-lion) caterpillar, and tumble-bug, including ants and common flies, were quite familiar, and also the objects which these names represented. Doubtless some men inherit strong proclivities towards certain pursuits, but I don't think I did for the natural sciences. Long trivally spent years intervened between those early observations, and the subsequent period when I began to take an interest in natural science. It formulated itself this wise: Seated upon the shop-board on a summer day, about five and forty years ago, with a window opening on a garden full of weeds, the blooming umbel of a wild parsnip plant resting on the sill of the window, I noticed a great variety of insects visiting the plant, then flying away and soon returning again. I was perfectly astonished at the number and variety. I had previously been reading "St. Pierre's Studies of Nature," in one of which he had related a similar observation, having noticed thirty species of insects visiting a single plant during a single day. Said I to myself, "I will see how many different kinds of insects will visit this plant in a day," and forthwith I commenced capturing and impaling them on common pins and needles, and as I proceeded I became fired with a sort of enthusiasm; especially as the number far exceeded that of St. Pierre; although I subsequently discovered that the differentiations were largely varietal and sexual. These insects were mainly *Hymenoptera* and *Diptera*, the former having four membranous wings and the latter only two. A few, but only a few were *Coleoptera*, otherwise named beetles or shield-winged insects. Without

knowing, or ever suspecting that a sort of mimicry exists among the different orders and families of insects; after a more minute comparison, I noticed it conspicuously present even in this first collection. What I mean is, that certain species in one order or family have their representatives in some other order or family, and resemble them so closely in color and form, that a novice may easily confound them.

Pursuing these embryotic studies, I was one day sauntering along the banks of the Chiquasalunga when I encountered two men engaged in frog shooting. One of them had just shot a large frog and he called my attention to it, from the fact that, although he had shot the whole head off, the reptile seemed to toss its body about with unabated vigor. I soon discovered that there was something within it that produced its peculiar movements and on opening it I found its stomach occupied by a large black living beetle, also two dead ones, and several fragments of similar beetles. These beetles were entirely new to me, and of no ordinary character. I secured them and when I reached home I impaled them amongst my other insects. Although I had previously been interested in mineralogy, and somewhat in ornithology, I did not know of a collector nor a collection of insects in the world. One day the late Professor Haldeman, of "Chiques Rock," came into my shop, as he always did when in town, when his keen eyes immediately fell with delight upon my small collection. He informed me that the large black beetles were *Xyloryctes satyrus*; that they belonged to the order *Coleoptera*, and the family SCARABIDE in the division LAMELLICORNIA. That definition was about as "clear as mud" to me, and he recognized it with a grim smile. He informed me that he had just come into possession of the collection of, then, the late Professor Hentz, of Alabama, and invited me to come and see it. Of course I availed myself of the first opportunity to do so, and that visit inoculated me with the virus of entomology. Subsequently he consolidated the Hentz collection with one that he made himself, the former being mainly southern species. Long years thereafter I came into possession of that consolidated collection and incorporated it with my own, consisting of American and foreign species, so that all that remains of the Hentz-Haldeman collection is now in the museum of the Linnean Society, here, in Lancaster city, and the specimen of *Xyloryctes satyrus* taken from the stomach of a frog three and forty years ago, remains intact, and constitutes the nucleus around which cluster ten thousand species of *coleoptera* from Asia, Africa, Europe, North and South America, Australia, and the West India Islands.

There was no hereditary predisposition involved in it, as it is merely initiative, and the result of years of slow, patient, and persevering labor. I unconsciously cultivated a love for it, and old habits gave way to the "expulsive power of a new affection."

SELECTIONS.

COUNTRY ROADS.

The American visitor finds nothing in Europe to call forth his admiration more un-

reservedly than the general excellence of the highways. To Mark Twain the roads of France looked as if they had been "jack-planned and sand-papered." There is nothing in America which excites the surprise of European visitors in a more marked degree than the poor quality of our highways. Herr Lasker declared that the worst thing he saw in America was the roads. Where the country is new and sparsely settled the best roads are impossible. There are so many miles of wheelway and so few people to make and maintain them that smooth roads the season through, can not be hoped for. But a few years ago the whole country was new, and we are still following frontier traditions. Each year, however, as our civilization grows older the demand for all possible conveniences grows more importunate, and this spring we observe a louder clamor for improvement in our public roads than was ever made before. This demand does not come alone from those who drive for pleasure. The farmers are beginning to realize that the mud of spring, the dust and ruts of summer, and the roughness of all the year, bring constant expense. Bad roads double the annual cost of repair upon the farmer's rolling stock. They consume his time. They compel him to go twice to market for what he could carry at one load on a smooth way. They wear out his teams. They often bring serious injury to promising young animals.

Of course, our roads are "worked" every year. That is, the soft muck and wash is scraped up on the track from the ditches, to soak up like a sponge the water from the undrained bed, and this muck is worked into a mortar after every rain. The only attempt at engineering is the construction of water breaks or "Thankee-na'ams," which serve no good purpose except, perhaps, to jolt the dyspepsia out of any who may be doomed to bump over them. There is no systematic effort to secure the first essential of a good road, thorough drainage, to wit; no intelligent endeavor to make a smooth, hard surface.

Now, what is needed to secure good roads? First and foremost an enlightened public sentiment in the matter. Not a mere assent to the proposition that better roads are needed, but a profound conviction that no community can afford to be without them. Local road reform associations, if organized, could accomplish much by educating the people in this direction.

Good roads cost money, and yet the outlay would prove a paying investment for any community. Facts and reasons should be given in public meetings to demonstrate this, until public spirit is aroused and enthusiasm kindled. If any town or county sets about it with a will the reform will be carried, but road reform is too large an enterprise to be carried through with a half-hearted support.

The next step is not to give popular instruction in the art of road-making, but to have it understood that the average laborer cannot make a road any more than he can build a house. Special training is needed for the proper construction of a road as truly as it is for the proper construction and maintenance of a railway. The "jack-planned and the sand-papered" roads of France were not made

by farmers who devoted themselves with a team and hand, a plow and a scraper to the task for three or four days each year. Road-making should be recognized as a distinct business—a profession, and a few skilled and trained men should be employed constantly to do what in many parts of the country is everybody's business.

After all, good example will accomplish the most beneficent results. Every stretch of perfect wheelway is an incitement and challenge to the adjoining district. Any community which reforms its own road system will insure easy traveling in every direction, for the advantages of good roads over bad are so apparent when brought to the test of experience that further argument is not needed.

An esteemed correspondent writes: "A move in the right direction has been made by a public spirited gentleman in Chester county, who is reported to have offered a sum sufficient to purchase a steam stone crusher, the amount to be returned in annual instalments of \$100 free of interest. And further, he agrees to furnish the stone free until all the highways in his township shall be placed in first-class condition."

This means more than good roads for a single township. It means awakening interest and instruction by actual experience for every one who drives over the improved roads. The untrained gentlemen will encourage a wider reform, and his beneficent influence will be felt radiating in every direction.—*Phila. Press.*

THE MOVEMENTS OF LIQUIDS IN LIVING PLANTS

Water is the vehicle of transportation of all substances in a living plant. This liquid compound also furnishes much of the material for building up the plant structure. All the movements of water in a tree, shrub or herb are slow, and their general direction is determined by the relative positions of the parts of the plant which absorb the water from without those parts which make use of it within. Most plants have a large expanse of foliage, from which water is evaporated or transpired, slowly or rapidly, according to the texture of the leaves and the conditions under which they are placed. If the leaves are exposed to a hot, dry atmosphere and a bright sunshine, the evaporation may be so rapid as to exceed in amount the weight of the plant, if it be a small one.

The main source of absorption is the roots, and it is evident that there must be a flow of this water from the absorbing root surface to the evaporating leaf surface. This surface has very little immediate connection with the processes of plant growth. Its rapidity depends upon the conditions above mentioned. When evaporation ceases, as in very moist weather, and the leaves are wet with dew or rain, the flow of water is very slight. This current of water, to meet the wants of evaporation, passes exclusively through the woody portion of the plant. Sachs, in his work on vegetable philosophy, says: "All the rest of the tissue may be destroyed at any place without the current of water ceasing, if only the wood remains entire."

The movements of liquids for purposes of nutrition and growth may take place through any form of plant substance, but they all have

this in common, that their direction is toward the places where they are required. If growth is taking place at any point, the nearest portions of surrounding plant substance give up their liquid and this creates a demand upon the more distant parts, so that a current through every fibre may exist from one extremity of the plant to the other.

The leaves are the factories in which the compounds used in plant growth are made, and from these leaves the assimilated materials flow back to all places when they are needed. In our common trees there is a ring of new wood formed annually next to the bark, and there must necessarily be a flow of the elaborated sap down the branches and trunk of the tree or shrub. In case of the potato, the mass of starch stored up in the subterranean tuber reached its place of deposit in a soluble form by passing back through the potato stem toward the roots.

There is another kind of motion of liquid in plants depending on what is known as root pressure, and is independent of growth or leaf evaporation. This is strikingly shown by cutting off a small stem close to the soil. The water that will sometimes flow from the stump will amount to several times the bulk of the root. This flow will continue when a pressure or weight is placed on the cut surface. This motion is not to be confounded with "bleeding." This occurs when branches previously cold and filled with water are rapidly warmed. The air in the wood expands and forces the liquid out. When the wood again cools the air contracts, and the water gathered upon the cut surface is drawn in again. The conditions for this "bleeding" obtain especially in early spring.—*Philos. Press.*

ABOUT FORESTRY.

Prof. Rothrock, of West Chester, the other evening delivered a lecture in Horticultural Hall, Philadelphia, on the subject of Forestry, a needed reform which does not grow out of the whims or fancies of a few crack-brained agitators, but which springs directly from the necessities of the people as civilization advances and as over-crowded population makes political economy requisite. The better to understand the subject, we would state that forestry does not propose to revolutionize any fundamental law or business; that it does not teach that to keep a forest intact, timber shall be allowed to stand after maturity, or decay on the ground where it grew, but—we quote the Professor—"it suggests that trees, as fast as they mature, shall be felled, and that young trees, when unpromising, or crowding other trees, shall be cut and utilized, to make room for rapid growth of desirable specimens. In other words, the fundamental law of sound forestry is, grow your timber as fast as possible, then without loss of time realize on it, and plant more; but do not cut down mature and immature trees as you would mow down a crop of grass." But here is the Professor's strong point, viz., that, while forestry does not contemplate using land for trees so long as that land can be put to more lucrative uses in other crops, it does contemplate using barren ridges, mountain slopes, sandy shores, that frequently overflowed by water, and waste lands generally. It is assured that at least six per cent. of the

area of this State is in mountain land, which is either too rough to cultivate or so poor that it would pay better if kept in trees than in cereals, or devoted to grazing. This fact, he says, has become so prominent in New York State during the past year, that the spruces of the Adirondacks have overshadowed the entire Legislature and dwarfed every other question by the magnitude of the sentiment which they have created in favor of their protection. The Professor makes the somewhat astonishing statement that our forests are more valuable to us than the gold of California or the silver of Colorado.

The random talk that the forestry movement is accomplishing nothing, he says, will no longer be quietly listened to by the friends of the cause. There are to-day 248,496 acres of forest trees planted in Nebraska, and half as many more growing spontaneously since that State encouraged the protection and planting of trees. It is affirmed that there are 43,000,000 forest trees growing there, "where but a few years ago not one could be seen on her wide prairies." This, the Professor says, the advocates of forestry may proclaim from the house-tops as an astounding example of the strides made by a cause which, in this country, is hardly more than fifteen years old.—*Berks and Schuylkill Journal.*

THE GRASSES.

Pasture Yields More Nourishment Than Meadow.

The following experiment is reported by Mr. DeLaune in the "Journal of the Royal Agricultural Society" for 1882. After the grasses and clovers had grown one year and had become well established, one plot was mowed twice, and a similar plot was mowed six times during the year. The latter was to imitate the frequent cropping of grass by cattle.

	Total per acre.
Green, cut twice.....	17.96 tons.
Dried, cut twice.....	4.49 tons.
Green, cut six times.....	21.28 tons.
Dried, cut six times.....	8.62 tons.

The following shows the amount per acre of the most valuable substances contained in the hay:

	Nitro-gen.	Phos'ic Acid.	Lime.	Magn'esia.	Potash.
Cut twice.....	259.24	82.05	209.72	41.95	278.18
Cut 6 times.....	296.36	99.06	121.39	37.42	289.96
Difference.....	37.12	17.01	-87.42	-4.49	11.78

We see that from the second piece cut six times deficiency in weight is made up for by superior quality. It contains 7.12 lbs. of nitrogen, 8.01 lbs. phosphoric acid, and 1.78 lbs. of potash. It is certain that cattle grazed on the crop of the piece cut six times would have been better nourished than those to which the hay from the first piece would have been given. We should not forget that cattle, in grazing while roaming about, injure the grass more or less with their feet.

Aftermaths are richer in nitrogen than fine cuts, and they are more nitrogenous the younger they are cut. They are also richer in phosphoric acid and potash. Aftermaths are not so easily cured as first cuts, do not look so well, and often do not sell so well.

Care of Pastures.—The pastures of this

country, as a rule, receive very little attention. Who ever heard of a premium crop of grass? Pastures are often ruined by allowing the cattle to feed on them before the ground is settled in the spring; thus the roots are cut up and the plants checked for want of green tops to build them up. For growth, a grass needs green leaves as much as a colt needs fresh air and a stomach to digest his food.

Pastures may get too high in spring before feeding, as the culms run to blossom and become distasteful to stock. Late close feeding in autumn, especially if the season be a dry one, is a severe drain on the vitality of the plants and cause them to be a long time starting in the following spring.

Let any one mow a piece after this feeding in autumn, and mow another not closely fed the fall before, and he will see a great difference in the yield. "To improve the pastures," Professor Stockbridge says, "you must first seek to reform the farmer." When pasture is unproductive, harrow and sow on other kinds of grasses with a top-dressing of some fertilizer. Feed the cattle oil meal, cotton cake or some other good feed. It is a good practice to permit a part of the pasture to grow large for late fall feed.

Concerning the management of grass lands it is quite important not to feed them the first year. Mowing is better and is generally practiced in this country. A pasture cannot do much above ground, till after the formation of a large bulk of roots below.

Meadows are often injured by being shaved too closely, by continued removal of hay without any returns in the form of fertilizers. Plaster for clover should never be neglected, unless the farmer finds in his locality it does no good.—*Press.*

ROOT CROPS FOR CATTLE.

The time is again approaching when the farmer casts about him as to the crops he shall put out, which will realize him most money, or which will give him the best results for consumption on the farm. It is pretty generally conceded that in this State, especially in this part of it, too little attention is given to planting root crops as food for stock. Experience has long since demonstrated beyond all question that stock of every kind thrives better if fed a certain ration of roots, mangels, turnips, beets and the like. In New England this knowledge has been largely introduced into practice. Root crops are grown as regularly there as wheat and corn. In Great Britain the practice prevails universally. Turnip fields are as numerous in some sections as grain fields, and that is admittedly one of the chief reasons why England produces the finest mutton in the world.

Cows, as every farmer knows, are not only exceedingly fond of roots of all kinds, but thrive on this food in a remarkable degree. It not only increases the flow of milk, but tests show that the flow is kept up several months longer where roots are regularly fed. Beets, the chemists tell us, are not rich in nitrogen, but they are excessively so in rich natural juices. They also say the feeding value of roots is small compared with most classes of dry foods. No doubt this is true, but the fact remains that beets act on the animal econo-

my much as lime acts on soils. Lime is not a fertilizer in itself, but it aids the soil assimilating the other plant food in it. So roots, when fed with hay or grain, seem to enable animals to derive a greater benefit from them. They also seem to have special properties that conduce to the health of the animals. The avidity with which the latter eat them seems to show that they are almost a necessity with some kinds of farm stock.

The above, along with many more considerations that might be urged, should induce farmers to plant root crops more extensively than they do heretofore. There is considerable variety of choice; but we should very much like our farmers to try to grow a few sugar beets. They are richer in sugar than any other roots and their value therefore greater as a fattening and heating food. They are very productive also and on the whole yield as valuable a crop as either mangels or turnips. From fifteen to twenty tons can be grown on an acre, and such a yield is undoubtedly worth as much for feeding purposes, in a money point of view, as any other crop that can be grown. But we also advocate this on other grounds. Sooner or later sugar beets will be grown for other purposes. They will be needed by the sugar factories that are certain to come along in due time, and which will then make demands upon the farmers which they may not be in a position to comply with. The cultivation of the sugar beet, like every other crop, must be learned by careful experience. A beginner is apt to raise only half as many tons on an acre as one who has grown the crop for years. It pays to know how the best results are obtained. Therefore let a beginning be made now. Why cannot a small patch be put out as our experiment? Half an acre will not be missed by the other crops usually planted, while the cost to the farmer will be moderate. Where much stock is kept, sheep as well as cows, an acre or two would not be too much. While the stock would be benefited fully as much as the outlay would cost, and more too, a valuable experience would be gained that is pretty sure to turn into money at no distant day. Let the experiment be tried.—*Nov Era.*

CULTIVATING THE ORCHARD.

There is a great variety of opinion among farmers concerning the best way of managing an orchard. Nearly all agree that at first—during the first three or four years—the orchard should be cultivated; that is, some crops should be planted which would in some measure keep the soil stirred, whether the crop be corn, oats, wheat or potatoes. Rye and corn are hardly the best for the first year, especially for a very young orchard where the trees are small; and again with a cultivated crop, like corn or potatoes, there is always more or less risk of damaging the trees with the chains, single-tree or plow. Some plant in potatoes and then cover with straw, but so far as my experience goes this is a very poor plan.

I had a neighbor once in Illinois who nearly ruined a fine young orchard of fruit set out that spring. The soil was first well plowed and put in good condition before the trees were set out. Later in the spring the whole was furrowed off in rows three feet apart, one

way, running the plow as close to the trees as possible. Then the whole plot was planted in potatoes, in drills, the hills eighteen inches apart. After they had sprouted well, or in about ten days, the whole was covered with straw, from twelve to eighteen inches apart. The orchard had been set out near his house and barn buildings. The trees seemed to do first-rate during the summer, but late in the fall, when the potatoes were dug, the trees showed the effect, as fully four-fifths of them were ruined by the mice. They had burrowed under the straw and had stayed all the time, living on the potatoes and the bark of the young trees. Although a fine crop of potatoes was raised, yet the damage to the orchard was greater than the profit on the potatoes.

In two or three instances I have noticed a crop of vines such as watermelons, pumpkins etc., raised in a young orchard to a good profit, and without damaging it. Oats or sweet corn are good crops, as neither occupy the land for any considerable length of time, and yet long enough to keep down the greater part of the weeds.

The usual practice is to plant to some crop, for two or three years, and then sow grass. This plan is a very good one in following it out we do not neglect the orchard. If we want to secure two crops in this way from the same land in one year, we must care for it in such a manner that the land will be able to do this, and the only way to accomplish the result we seek is to manure.

A good top dressing should be applied if possible every fall; a light dressing of well-rotted manure spread evenly all over the surface—that, too, without any lumps to damage the grass, will prove better and give more profitable results than a heavy dressing given every three or four years in such a way as to damage the grass.

The trees should have the soil for a considerable distance around the trunk stirred up and good fertilizers applied; for this purpose wood ashes unleached are very valuable. The worst objection to seeding down an orchard is the tendency to let it take care of itself, after a good stand of grass is obtained. I know of an old orchard that had been neglected until it was worse than unprofitable, it was an expense. The owner first plowed up the whole plat as well as he could, and then gave a heavy application of manure early in the winter; this was spread evenly, not all around the trunks of the trees but all over the ground. Twice during the winter the manure into the soil; early in the spring as soon as the soil could be worked well, the whole was plowed again, harrowed as fine as possible, then rolled and seeded to clover. Since then the owner has realized four fine crops of apples, and has a tip-top clover pasture besides in which he keeps his sheep or hogs.

I know of another orchard—and it is a good one—that the owner acknowledges has paid him better than any plat on the farm. He manages it in this way; after the orchard became established he plowed the land in strips, but only plowed between the trees, never running nearer than four feet on either side of trees; that is, he left a strip about eight feet

wide one way of the orchard that was left unplowed. Potatoes were planted and covered with straw; in the fall the straw was piled in long rows opposite to the ground plowed and planted the year before, and the potatoes dug the next spring. This soil was plowed cross-ways, and in the same manner as before, and planted to potatoes. This old straw was used to cover again. The next fall the straw was thrown off the same as before, and the potatoes dug; after this the ground was well plowed, and at each round of the plow the furrows were filled with the straw, and then covered up the next round. During the twelve years the orchard has been treated in this way, but two applications of other manure—rotted manure from the stable—have been applied. The rotting straw has been of considerable benefit.

The fertility of the soil has been kept up, a fair crop of potatoes raised, and the owner, of course, thinks it an excellent plan. One thing is certain, we must enrich the soil if we expect an orchard to prove profitable. The idea that an orchard after it once gets started will take care of itself is a decidedly mistaken one, and if we expect to raise some other paying crop in the orchard extra care in this respect must be given.

Taking all things into consideration I prefer to cultivate an orchard at least three years after setting out, and then give a good application of manure, put in good condition, and seed to clover, using it then for hog and sheep pasture. In this way the fertility can in a great measure be kept up without extra application of manure, and although we may not find the clover a profitable crop for hay, yet it will furnish a very large amount of the very best of hog feed, and then, too, at a very low cost, and by using it in this way we will be able to make the orchard yield as great profits, taking one year with another, as any other part of the farm.—*N. J. Shepherd, in Prairie Farmer.*

NEW SILK INDUSTRY.

The chief attraction at the silk culture exhibition at Horticultural Hall last night was the awarding of premiums by Strawbridge & Clothier for the best silk cocoons raised in the United States during 1883. The premiums were awarded on the basis of the quality and quantity of reeled silk yielded by 100 cocoons. There were seventy-seven entries from twenty States for the premiums, which amounted to \$500.

Mr. Clarkson Clothier, in awarding the premiums, said:

I come forward this evening to announce the award of the third annual premiums offered by Strawbridge & Clothier to the silk culturists of the United States through the Women's Silk Culture Association. On the first occasion, the number of contestants was twenty-six, from four States; on the second occasion, the number was thirty-three, from eleven States; this year we have seventy-seven competitors, from twenty States.

It is but fair to assume that the growth of silk culture is to be measured by these figures, and the astonishing development of this industry in the last three years is, indeed, wonderful. From all parts of the country come assuring sounds of encouragement.

The industry has developed wonderfully in California, to which State the first premium was awarded last year, and in the South and East many are taking hold of the work. The fact being established that cocoons can be produced in paying quantities, the problem became how to have these reeled in sufficient quantities to keep pace with the supply, there being no steam filatures in this section of the country and the hand reels used here being inadequate to the increased task. To develop this important feature of the industry the firm of Strawbridge & Clothier brought to this city a foreign steam reel which is now running successfully in this hall. By this means the continuous development of the silk from the worm through the successive stages of the cocoon, the reeled silk and the woven fabric becomes a matter of assured fact, and we see that silk culture, which needs only time to become a great national industry, is successfully being illustrated in all its stages in this country at the present.

This is a state of affairs that is especially gratifying to every citizen, and while we measure the importance of these results thus far attained, it must not be forgotten that to the fostering care and patient work of the members of the Women's Silk Culture Association the result is largely due. Let us remember this, and in thus honoring these ladies whose far-sighted wisdom has foreseen these results, and whose well-directed energies have produced them, we shall be giving "honor to whom honor is due."

First premium, of \$100, to Miss E. Woolston, Pemberton, N. J. There were 160 cocoons to the quarter pound, and the yield in reeling, 1 21-100 ounces of silk, and 2 79-1000 ounces of waste. One hundred cocoons yielded 76.00 of an ounce of reeled silk. White mulberry was used in feeding the worms.

Second premium of \$75, to Messrs. Riedtz & Mantz, San Jose, Cal. There were 165 cocoons to the quarter pound, and the yield in reeling, 1 13-100 ounces of silk, and 2 87-1000 ounces of waste. One hundred cocoons yielded 68.100 of an ounce of reeled silk. White mulberry was used in feeding the worms.

Third premium, of \$65, to Mrs. A. Williams, Riverton, N. J. There were 173 cocoons to the quarter pound, and the yield in reeling, 17-100 ounces of silk, and 2 93-1000 ounces of waste. 100 cocoons yielded 62-100 of an ounce of reeled silk. Osage orange was used in feeding the worms.

Fourth premium, of \$60, to Miss Anna M. Mantz, San Jose, Cal. There were 196 cocoons to the quarter pound, and the yield in reeling, 1 15-100 ounces of silk, and 2 85-1000 ounces of waste. 100 cocoons yielded 59-100 of an ounce of reeled silk. White mulberry was used in feeding the worms.

Fifth premium, of \$50, to Miss Clara S. Lewis, Virgil City, Mo. There were 190 cocoons to the quarter pound and the yield in reeling was 1 7-100 ounces of silk and 2 93-1000 ounces of waste. 100 cocoons yielded 56-100 of an ounce of reeled silk. Osage orange was used in feeding the worms.

Sixth premium, of \$50, to Mrs. George Derr, Germantown, city. There were 170 cocoons to the quarter pound, and the yield in reeling was 92-100 ounces of silk and 3 8-100 ounces

of waste. 106 cocoons yielded 34-100 of an ounce of reeled silk. White mulberry was used in feeding the worms.

Seventh premium of \$40, to Mrs. W. Hayes, Chester, Pa. There were 308 cocoons to the quarter pound, and the yield in reeling was 1 11-100 ounces of silk and 2 89-1000 ounces of waste. 100 cocoons yielded 53-100 of an ounce of reeled silk. White mulberry was used in feeding the worms.

Eighth premium of \$30, to Mrs. Augustoria, Philadelphia. There were 236 cocoons to the quarter pound, and the yield in reeling was 1 23-100 ounces of silk and 2 77-1000 ounces of waste. 100 cocoons yielded 53-100 of an ounce of reeled silk. White mulberry was used in feeding the worms.

Ninth premium, of \$25, to Mrs. Anna Husted, Liberty, Ind. There were 182 cocoons to the quarter pound, and the yield in reeling was 96-100 of an ounce of silk and 3 4-100 ounces of waste. 100 cocoons yielded 53-100 of an ounce reeled silk. Osage orange was used in feeding the worms.

Tenth premium, of \$10, to Miss M. B. Lowery, Portsmouth, Ohio. There were 233 cocoons to the quarter pound, and the yield in reeling was 1 13-100 ounces of silk and 2 87-1000 ounces of waste. 100 cocoons yielded 50-100 of an ounce of reeled silk. Osage orange and White mulberry were both used in feeding the worms.

The association has prepared a memorial to Congress indorsing the act providing for the creation of a silk culture bureau and establishing silk culture stations under the direction of the National Government.

DISEASES OF THE SUMMER.

These diseases occur at all seasons of the year and in all climates, but they are most common within the tropics and elsewhere most frequent in hot seasons. From the mortality list of the city of Philadelphia it is found that the deaths from these affections during the summer as compared with the winter is in the proportion of three to one. The causes of diarrhea are numerous—exposure to cold and wet, exposure to intense heat, drinking of foul water, exhaustion and fatigue over-exertion, but the most common cause is disturbed or arrested digestion. The diarrhea which follows imprudence in eating is familiar to every one. The imprudence may consist either in over-eating or in the use of improper food, as unripe fruit and raw vegetables. Disturbance of the nervous system and intense mental emotion occasionally give rise to a transient diarrhea. The case is reported of a surgeon who, while performing an important operation was so affected by anxiety and the sense of his responsibility, that a violent attack of diarrhea immediately came on, and he was obliged to relinquish his instruments and retire from the room.

Although diarrhea is a symptom of disease rather than a disease itself, yet in many cases it is the chief symptom, and with the relief of the diarrhea a cure is established. It is a symptom of many different diseases, as of consumption, some forms of Bright's disease, typhoid fever, congestion of the liver, etc. Diarrhea is generally free from danger, except in the case of very young children or in aged persons with enfeebled constitutions, or when

the diarrhea has been long continued and severe in character. Fortunately, the greater number of the cases of summer diarrhea in adults are of a simple character and cease upon the removal or avoidance of the cause, which is, as a rule, not difficult to discover.

In the treatment of cases of diarrhea, the first thing will be the removal of the cause. If it arises from the presence of some offending material in the intestinal canal, it must be got rid of by the administration of a dose of rhubarb, castor oil or some other laxative. Rest is an important factor in the treatment, recumbent posture as nearly as possible. The diet must be regulated. All articles difficult of digestion must be eschewed; rich and greasy food, vegetables, fruits, and generally solid animal food. Milk and milk-foods, the lighter starch foods, rice and the like, arrow-root and sago, custards, meat-broths, dry bread a day old or toasted, make up the bill of fare. A warm poultice or a mustard plaster may be applied to the abdomen. If any treatment further than this is needed, it should be under the direction of a physician.

Dysentery

has been known as a disease since the earliest period of medical history. It is a disease of hot climate; within a belt of 35° north and south of the equator there are lands never free from it. With us it is rare in the epidemic form except in military life, but is common enough as a scattered or sporadic disease in the hot season, to be classed properly among the diseases of summer. Unlike diarrhea, dysentery is a disease, not merely a symptom; the epidemic form is thought to be a specific disease, and caused by a specific poison. The characteristic manifestations of the disease are distressing, twisting, colicky pains in the abdomen, with a constant tormenting desire to have the bowels moved, and violent straining and bearing down pains, these efforts resulting in the passage of small amounts of mucus or blood, or these commingled, often nothing more. The disease may last from four to twenty-one days, or may pass into the chronic form, when it is often most intractable. The immediate mortality from this disease varies from five to thirty per cent. of those attacked. The causes of the disease are much the same as those that cause diarrhea. This is often times a serious disease, and the responsibility of the management of each case should be promptly transferred to medical hands.

Summer Colds.

There is scarcely one of us but knows what it is "to catch cold," and the disagreeable sensations attending the process. The predisposing cause is fatigue, mental or physical exhaustion—in a word, that condition of the nervous system which we call "tired." The immediate causes are: A lowered temperature, air in movement, and moisture, or some combination of these three. Although colds are most common in cold and damp weather, they are by no means infrequent in summer, without doubt by reason of the greater physiological activity of the skin, and the temptation to relax our customary watchfulness in such matters. A "cold in the head" is a minor hardship at any time, but a summer cold is a hardship indeed. It is easy to catch and much harder to get rid of, being kept up by

the action of the slightest puffs of air upon or over sensitive skin, and by the local irritation of dust, the perfume of flowers and the pollen of plants. The popular opinion that this kind of a cold is apt to last longer in summer is based upon correct observation.

Sometimes a person engaged in the usual pursuits of life, unconscious of any change in his surroundings or of the weather, becomes suddenly aware that he has caught cold. More often perhaps, by some imprudent change in clothing, or when tired and overheated by sitting near an open window courting the welcome breeze, the cold is produced. There is a marked predisposition to take cold on the part of certain persons. Such persons are usually wanting in physical power, are feebly organized, with sensitive skins prone to perspire on the slightest exertion, often neuralgic. They lead sedentary lives and take but little exercise.

The every day expression, "I have a cold," means, in the vast majority of cases, that the person suffers from some mild, acute, inflammatory trouble of the throat or nasal passages; oftentimes the latter. The symptoms are so well known as to make an enumeration of them unnecessary. The Germans call it "schmupfen," a word almost equivalent to our "snuffles," which is very expressive. The old idea that the secretions of catarrh came directly from the brain, an opinion still vaguely entertained by the people, was proven to be false several centuries ago. The discharge is derived from the mucous membrane which lines the cavities of the nose and extends as a lining membrane into the hollow chambers occupying the forehead.

In the earliest stages such time-honored measures as a hot foot-bath of mustard water and hot lemonade, with a tablespoonful of whisky, are excellent; but they must be taken in the beginning to do the good they are capable of; and it is not to be forgotten that harm may come of imprudent exposure next morning. A plain nutritious diet, the sparing consumption of fluids, attention to ventilation and the temperature, and to the weight and warmth of clothing, are required. Preventive treatment consists in attention to the general health, and the greatest care in avoidance of exposure when fatigued. An over-sensitive skin may be hardened by systematic cold or lukewarm sponging, and by regular exercise in the open air.—*C. H. B., in New Era.*

GREEN PEAS

First see that the peas are young and fresh, and be ready to boil them as soon as they are out of their pods. Take two quarts of water and put it in a saucepan with a quarter of an ounce of salt. After it commences to boil skim it well, and then put in your peas. One quart will be enough for the two quarts of water. Let them be uncovered, and boil them briskly. If they are young and fresh, fifteen minutes will be sufficient to cook them. Now remove them from the fire and drain them, and put them in a clean saucepan with about a quarter of a pound of good butter. Season them with a little salt and a pinch of pulverized sugar, then stir them an instant over the fire and serve at once. If the flavor of mint is not objected to, the peas may be boiled with a small quantity added to water.

Another method (Dr. Kitchener's).—The peas must be young; it is equally indispensable that they be fresh gathered and cooked as soon as they are shelled, for they soon lose their color and sweetness. Pass the peas through a riddle, that is, a coarse sieve which is made for the purpose of separating them. This precaution is necessary, for large and small peas cannot be boiled together, as the former will take more time than the latter.

For a peck of peas, set on the fire a saucepan with a gallon of water in it; when it boils, put in your peas with a tablespoonful of salt. Skim it well, and keep them boiling quick from twenty to thirty minutes, according to their age and size. The best way to judge of their being done enough, and indeed the only way to make sure of cooking them to and not beyond the point of perfection, or, as the peacaters say, of "boiling them to a bubble," is to take them out with a spoon and taste them. When they are done enough, drain them on a hair sieve. If you like them buttered, put them into a pie dish, divide some butter into small bits, and lay them on the peas. Put another dish over them, and turn them over and over; this will melt the butter through them. But as all people do not like buttered peas, you had better send them to the table plain as they come out of the saucepan, with melted butter in a sauce tureen. It is usual to boil some mint with the peas; but if you wish to garnish them with mint, boil a few sprigs in a saucepan by themselves. A peck of young peas will not yield more than enough for a couple of hearty pea-eaters; when the pods are full it may serve for three. Never think of purchasing peas ready shelled, for the cogent reasons assigned in the first part of this recipe.

Another method.—Take a quart of fresh-shelled young peas and put them in a pan of cold water. Then place in a saucepan the heart of a head of lettuce, an onion and a piece of butter. Now take your peas from the water and (without draining them) put them in the saucepan, adding three or four lumps of white sugar and a little pepper and salt. Cover the saucepan and set it where the contents may stew briskly until tender, removing the lettuce and onion before serving. A sprig of mint may be added in the cooking if liked.—*Philadelphia Press.*

OUR LOCAL ORGANIZATIONS.

LINNEAN SOCIETY.

The Linnean Society met on Saturday, May 31, 1884, at 2:30 P. M., President Hon. J. F. Wickersham in the chair. Before the regular meeting Dr. Rathvon read an interesting and instructive essay on "Commonplace Experiences in Natural History," in the lecture room of the Y. M. C. A., which was attentively listened to by quite a good sized audience.

After the public meeting the general meeting was held in the Museum ante room. Dues were collected and minutes of previous meeting after being properly corrected, were approved.

Donations to Museum.

Mr. J. M. Westhaeffer donated a fine cage specimen of the Virginia "Corn Cracker" *Cardinalis virginianus* which, from some unknown cause, had died. This bird in its time has been honored with many, both scientific and common names, not necessary to mention here; the latter of which were mainly local. It has the reputation of being a fine singer

and usually bears confinement well. In my youth I knew of one owned by a farmer of Donegal township, and whom I frequently heard say that he owned it fourteen years and he could not tell how old it was when it came into his possession, nor do I know how long it lived after left the farm. This bird breeds in Lancaster county, and on several occasions I have known it to pass the winter in the woods contiguous to Chiques Rock. Belonging to the great finch family *Tringillidae*, it naturally feeds on seeds and berries, and in the absence of these it would also feed on insects; at least the individual alluded to in reference to its longevity, was educated to partake of insects, especially grasshoppers. It is said to be one brooded in the Middle States, but two or even three brooded, in the South. A variety or subspecies from Arizona *Cardinalis virginianus texensis*, lacks the black frontal about the base of the bill, and another variety *Cocconea*, from Central America and Mexico, is more richly colored than our variety.

A specimen of the so called "grey eagle" or "Bird of Washington," was purchased by the curators for the use of the society, which was shot by Mr. H. A. Fox, near Oreville, May the 5th, 1884. The villagers for some weeks had noticed a diminution of their poultry stock; and seeing this bird on a tree on the rock lookout, Mr. Fox "brought it down" as the deplorator.

Dr. Elliot Cooper says: "Those who, practiced in ornithology, may be puzzled by accounts of numerous eagles, may be interested to know that only two species have ever been found in the United States"—namely, the "golden eagle" *Aquila chrysaetos* and the Bald Eagle, *Haliaeetus leucocephalus*. Neither does the male nor the female of the latter species acquire the white head and tail until they are fully three years old. The "sea eagle," or "grey eagle," Washington's eagle, or whatever other name they may be known by, are merely immature specimens of the "bald" or "white-headed eagle." "In any plumage the two species may be easily distinguished by their legs." In the golden eagle they are feathered down to the toes, but in the bald eagle the shanks are naked. This individual then may be regarded as an immature specimen of the bald eagle. Ornithologists generally consider that the name of bald eagle is inappropriate. Applied to this bird, for its head is as densely feathered as any other birds. That name would be more suitably applied to vultures or turkey buzzards, or any other bird that has a naked head.

Among the early objectors to the adoption of this bird as our national symbol was Dr. Franklin, on the ground that it is "a mean, dishonest robber"—a great gourmand. Fond of fish, but lacking the courage or agility of an honest fisherman; nevertheless having sufficient of those qualities to constitute a thief or robber. Perched upon an eminence, with keen eye it watches the "osprey" or "fish-hawk," and as soon as the hawk secures his prey and is about bearing it off to his family, the eagle with lightning speed, darts after him, compels him to relinquish it, which he usually does with distressed scream, when the eagle darts after it secures it before it reaches the water, and hears it off in triumph to his own eyrie, and there voraciously devours it.

Both the mature male and female possess the white head and tail, but the female is the larger, the deeper colored, and the most courageous of the two, characteristics which distinguish most of the *Falconidae*. The bald eagle, in an emergency, will resort to carrion food, driving off and keeping at bay the buzzards, until he has "gorged his beastly stomach." But, with all these drawbacks, in full plumage, they are noble looking birds, and perhaps would be noble minded if no obstacles interposed, and they could follow the natural bent of their inclinations. They are said to be capable of great endurance and denial, passing a week or more without partaking of any food. On dissection, it has been discovered that the ovary of the female contains a very large number of eggs, and all nearly equal in size, and yet they are but one brooded, and have only two in a brood. Con-

jectures have been founded on these facts, that the natural life of this bird is probably one hundred years, as it would require that length of time to exhaust all the eggs. Fifty and sixty years of a life tenure has been recorded in several instances, and that it might be longer, would not be impossible.

According to Mr. Fox's measurement of this bird, its ear expansion is nearly seven feet, which is nearly the average of the species, therefore it is probably nearly three years old.

A species of bat, donated by Mr. Fisher, who keeps a fruit stand in front of the post-office, who captured it on his premises. This is probably *Vesperugo nautilica*, if it is not a variety, or an immature "Hoary Bat."

Mr. Hiram S. Kendig, of Bart township, donated a number of fragmentary specimens of crystallized schorl, from that locality, where they occur in the soil. Many varieties of this mineral exist, according to their chemical compositions, under the names of *Tourmaline*, *Aphrite*, *Rehobite*, *Lidicohite*, *Aphazite* and *Turmalin*. The most abundant variety is black, but it also occurs red, green, blue, brown, yellow, pink and occasionally white. It has a very irregular and complicated crystallization, but perfect ones are rarely found except in certain localities. It is one of the components of granite, gneiss, &c.

Mr. Jonathan Moyer, of Conoy township, donated a flower of the "Squaw Root," also called "Cancer Root" (*Conopholis Americana*) which he found growing in a large cluster beneath an oak tree in that township. It is a thick, scaly spike, the scales covering each other similar to those of fir-cones. Gray says, specially, in reference to them, "Oak woods, not rare, growing in clusters among falling leaves, in May and June. A singular plant featuring colored or yellow throughout, as thick as a man's thumb, 3' to 6' long, covered with scales, which are at first fleshy, then dry and hard. (Many long years ago we kicked one of these clusters to pieces on an oak ridge now included in Duffy's Park, near Marietta, Pa., without knowing what it was, at least neither the names "Squaw Root" nor "Cancer Root" were associated with it, and we think we subsequently found one or two clusters in a contiguous woods, but these woods have long since passed away and only cultivated fields occupy the locality—R.") This plant may prove something else, but it seems to agree very well with Prof. Gray's description of *Conopholis Americana*.

A friend donated a curious potato, having a smaller one growing from a cleft in the side. Mr. Lewis Hatly donated a collection of twenty-five typical specimens of minerals from mines in Colorado and Rocky Mountains. The specimens consist of gold and silver bearing minerals and their accompany gangue minerals. Each specimen is numbered and a printed list accompanies the collection. The "Hoary Bat" donated by Mr. S. McConsey at last meeting, lived one week and then died. It is now deposited in the museum properly labeled. Walter P. King donated the four following specimens of plants, some new to the county: *Erantome lanigata*, Solanaceae; *Chorobillia juncea*, Lin.; *Sagittaria pusilla*, Nutt.; and *Hebanaria herbacea*, Gray. These were collected during the summer of 1881-2. S. M. Sener donated specimen of a small orange found enclosed within a larger one. The specimen is conformed to the core of the larger one and is quite unique, also a bottle of insects (*Coleoptera* of various kinds) collected in the summer of 1887. Dr. S. Rathvon exhibited a fine came made from a cactus plant. This is a beautiful piece of workmanship, and was presented to the doctor by his son, Harry Rathvon, who is here on a visit from Texas.

Donations to Library.

S. H. Zahn & Co.'s third catalogue of new and second-hand books; United States Patent Office Gazette, Vol. 27, Nos. 8 and 9; thirteenth price list and English grammar of publications, from E. Aber, Birmingham, England, (with a request to distribute the duplicates sent along); second annual report of United States Geological Survey for 1880-81, a quarto volume of 588 pages, illustrated with 61 colored

plates; one folded map, and 32 plain and colored diagrams, sent from J. W. Powell, Director of the Survey, in exchange for FARMERS' REPORT to the Department; FARMER for May, 1884; *Linnæa Bulletin* for March and April, 1884.

Two pamphlets from the Ohio Historical Society, Utica, New York. Copy of reprint of Marsh's *Journal*, Lancaster, 1744, with annotations by Dr. Eggle, of Harrisburg, (printed in the *New Era* recently), from editor of *New Era* catalogue and price list of stamps and seals manufactured by the Northwestern Stamp Works; list of brands for cattle used by Wyoming Stock Raisers' Association; envelope of twelve square, six railroad maps in United States and Canada; three bound manuscript volumes, containing the constitution, by laws, proceedings and rules of officers and members of the Friendship Fire Company of Lancaster city, from the 10th of December, 1767, to its disbandment, on the 24th of April, 1864, covering one hundred and twenty-one years of its active life, contained by said company through Mr. Haldy: Vol. 1 contains proceedings from Dec. 10, 1767, to Dec. 13, 1816; Vol. 2 contains proceedings from Jan. 15, 1817, to Dec. 24, 1851; Vol. 3 contains proceedings from Jan. 18, 1852, to April 24, 1884. James Bickham, the first president; Michael Hudly, the first clerk; Ludwick Leuman, the first treasurer. In the list of the first members is the name of George Ross, one of the signers of the Declaration of Independence.

On motion a vote of thanks was tendered the donors to the museum and library for donations, and especially to the Friendship Fire Company for its valuable donation to the historical collection of the Linnæan. (The Linnæan has quite a collection in its historical department, and as a historical society is often lauded in Lancaster, people seem to forget that the Linnæan collects historical matter referring to our city and county.)

The following communication was received from Prof. Stahr in reference to the proceedings of the May meeting:

LANCASTER, Pa., May 28, 1884.

TO THE LINNÆAN SOCIETY:

I deeply regret my inability to attend your regular meeting on the 31st inst., and as I cannot be personally present, I beg leave to present this communication for the purpose of making a personal explanation and a correction.

It will be remembered that at the last meeting of the society I presented a specimen of *Hesperocarya Carolinaensis*, Fries, which I found last summer near Willow Street, in this county. In the published proceedings of the society it is said that "this was not" this plant, when, in fact, I made no such claim. On the contrary, in the short paper which I read on the subject, I distinctly stated that my friend Dr. Porter had found it more than twenty years ago, and that he induced me to look for it last summer. It discovered it, and I, after its character was determined, merely established the fact that it grows there to-day and is one of our genuine species, hitherto not supposed to be found in this county. In my explanation of the different genera and species. In my paper (hastily written I must confess) I meant to say that Dr. Gray got Dr. Porter's specimens of the composite, and among them the *Hesperocarya* collected by Dr. Porter at Willow Street long ago, and, upon close examination, he (Dr. Gray) found that the plant in question belongs to a distinct species not heretofore recognized in this part of the United States, viz.: *Hesperocarya Carolinaensis*, Fries. Dr. Porter informed me of the fact, and requested me to see whether I could find the plant in question, and, if so, to collect a number of specimens, which I did, and which I recently had the pleasure of placing in his hands. One of them, at Dr. Porter's suggestion, I presented to this society at its last meeting, with a few words of explanation.

You may imagine, therefore, how vexed and mortified I was to find in the published proceedings of the society, and over my signature, what is intended to be a copy of the paper read before you, and was changed by the insertion of three words that it makes me appear in an entirely false light, and do grave injustice to Dr. Porter. I said: "Prof. Gray, who is at present in Lancaster, has just received the revised copy of Dr. Porter's specimens, and he pronounces it *H. Carolinaensis*, Fries." In the published proceedings the words "obtained from myself" are inserted in parenthesis after "specimens," thus conveying the impression that I furnished these specimens to Dr.

Porter, and I am, I must admit truthfully, as that I brought into the museum of which the moon is made. By "specimens" I meant "specimens of composite," and by "myself" the plant in question found among these specimens. The words "obtained from myself" I did not write, as you will find by referring to the original paper in your possession, and they were inserted without my knowledge or consent. The insertion, I am willing to believe, was not made with any view to injure me, but with an apprehension of the fact in the case. But as the paper has gone forth in this form I desire that the correction be made on the minutes, and circulated wherever this part of the proceedings has been published.

Very respectfully,
JOHN S. STAHR.

Bills of \$2 for purchase and mounting of eagle and red bird, \$1 for printing certificates of membership, \$1 for printing *Linnæan Bulletin*, and 25 cents for postage were presented and ordered to be paid.

Mr. John Burrows having moved to Memphis, Tenn., was changed from an associate to a corresponding member, on request, and by motion the secretary was authorized to have last year's volume of Proceedings of Academy of Natural Sciences bound. Committee on Constitution and by Laws handed in a draft of a new Constitution. On motion the Constitution was read and adopted in due form. Committee continued to next meeting, when a new series of "Rules and Resolutions" will be presented and acted on. On motion Dr. S. S. Rathvon's interesting and instructive essay was ordered to be printed in the FARMER.

Society adjourned to meet on Saturday June 28th, 1884, at 2 P. M.

FARMERS' INSTITUTE.

The first series of meetings having for their object the better instruction of farmers on subjects of most importance to them, was inaugurated in the Court House, on Wednesday morning, June 4th, 1884.

When the meeting was called to order, shortly after ten o'clock, there was a fair attendance of farmers and others interested in the subject of agriculture, including several ladies.

The Institute was called to order by Mr. J. C. Livinville, who announced the following officers:

President—Dr. James P. Wickersham.
Vice Presidents—H. A. Engle, Joseph K. Blackburn, James Wood, Calvin Cooper, H. G. Rush, S. S. Spencer.
Secretary—J. C. Livinville.

Committee on Reception—P. Wickersham, S. P. Eby, W. H. Brossus, F. R. Dileander.

Committee on Membership—M. D. Kendig, L. L. Laidig, Johnson Miller, Levi S. Reist and Joseph F. Witmer.

Upon taking the chair, Dr. Wickersham said he appreciated the honor, but thought a wiser plan would have been to have selected a practical farmer to preside; but they have seen proper to call upon him to preside, and he never shrank from any duty imposed upon him. He then briefly recited the manner in which the Institute came into life. These Institutes, he said, had never before been held in this State, but in many of the other States and counties they have been in existence for many years. The purpose of this Institute is to increase, if possible, the knowledge the farmers have on the subject of agriculture—to form a sort of agricultural school. He introduced Dr. James Calder, of Harrisburg, who made a short address on the subject of

"Grape Culture."

Among the fruits given us by God, one of the finest is the grape. Of the twenty varieties of grapes that have originated in the Keystone State, the Martha has achieved a world-wide reputation. Of those which originated in other States, the Concord is the grape for the million. It will grow anywhere and stand any sort of neglect. It is very easily managed and generally bears fruit in abundance. The Catawba stands deservedly above the Concord as a wine-making grape, but unfortunately it will not succeed in every section of the State. In his experience in the culture of the Catawba, he found that it would not bear after becoming several years old. He was now trying an experiment by which he will train his Catawba vine so that the fruit-growing branches

shalt be lower than ten feet above the ground.

The grape will grow in almost any soil, but the soil we should turn in is clay soil. It is an old saying that the grape does not like wet feet, and he would advise planting on stony ground, if he desired the best and sweetest fruit. In setting out a vineyard he would put the vines ten feet apart, for they like plenty of room. He advised the use of trellises instead of stakes. If he was setting out a vineyard now, he would buy strong yearlings, and train them up to a stake, cutting them back to two buds, with the understanding that only one was to remain. As soon as they commenced to grow he would pinch off the weakest of the two shoots. The next year he would cut them back to three buds, and afterwards remove the weakest of them. The third year he would erect a trellis and train his vine in two directions. In pruning, which he usually does when the leaves begin to fall, he allows every alternate arm to grow for fruit, cutting the other arm back to about one eye.

Dr. George B. Loring.

United States Commissioner of Agriculture, was next introduced and after apologizing for the short time he would be able to be present at the Institute, congratulated the members for the good attendance exhibited. He said that in coming from Philadelphia to Lancaster this morning, he traveled over 60 or 70 miles of a Farmers' Institute. He then bore testimony to the excellent farming he saw exhibited in this State and county, and compared it with his own farm in Massachusetts, where the grass is so short that a Pennsylvania cow would despise it, and where the wheat is so meagre that a Lancaster county farmer would refuse to cut it. The State of Pennsylvania presents a picture of enterprise and prosperity, especially among the farmers, second to none presented anywhere under the sun. The gentleman compared the farmers of America, with those of European countries, and said that while we bear a great deal about the farms in France, there is not a single farmer present who would accept in a single instance the condition of things on a French farm. The same may be said of the farms of Germany, England, Italy, China and Japan, in the last two of which he said a Lancaster county farmer would not stay fifteen minutes. He said there was no such thing outside of America as popular, practical, prosperous farming.

The business of farming—on which the State is living to-day—is the supply of a local market, and covered with railroads, as Pennsylvania is, there is no wonder that it is classed as one of the best farming districts for home consumption in the country. Take all the crops that are sent into a market rapidly, such as small fruits, and there is no question of the profits that will be reaped. It is more profitable to raise articles for a home market than it is to raise staples for a foreign market. The boom of American farming is one that cannot possibly be enjoyed anywhere outside of the bustle and whirl of the American life.

The condition of the farmer's life in this country is vastly different from that found elsewhere. The State of Pennsylvania to-day can feed, clothe and educate 50,000,000 of people better than she could feed, clothe and educate 50,000 people years ago. Is it any wonder that the people from all lands want to emigrate to America and settle in Pennsylvania.

It is a good thing to have a profitable farm, but it is a better thing to own your own farm, so that at your death you can say who shall have your farm after you have passed away, and this is a privilege the American farmer especially enjoys. The individual ownership of land is really the solution of important questions both at home and abroad. In conclusion the speaker said that the best thought he could put into the minds of farmers was to hold their farms and transmit them to their children. Take your children off the railroads and away from the stores and place them on your farm, and in fifty years, if you have died, they would give almost anything to be able to take you by the hand and thank

you for the blessing you conferred on them when you compelled them to remain on and cultivate the farm.

On motion a vote of thanks was extended to Dr. Loring for his very valuable and interesting address.

Afternoon Session.

The Institute was opened at half past one o'clock, and an opportunity was given to those who desired to ask questions of Dr. Calder, in reference to grape culture.

Ephraim Hoover wanted to know the causes and the remedy of some of the Isabella and Catawba vines not coming to maturity? Dr. Calder replied that the Isabella was an old variety and played out, and the Catawba did not have the right kind of soil.

Mr. Engle asked whether or not as a general thing people were not too apt to let their grapes over-bear? The answer came that this was so.

Another gentleman wanted to know the best method of propagating grapes from cuttings. The doctor said that the best way was to propagate layers, but that if you desire to raise grapes from cuttings, the easiest way was to cut off single eyes and plant them in moist sand with the eye even with the top of the sand.

A gentleman asked what preparation of the ground should be made for the planting of grapes? Dr. Calder replied that the ground should be made ready for corn, a condition that just suited the grape. Fall or spring were both very good.

Several persons having asked whether grape growing paid, Dr. Calder replied that some persons could grow wheat and not have it pay, and so it was with grapes. The fault, he said, lay with the person and not with the grape. He related his experience, and said he started out with planting 200 Concord vines. A friend said they would never be eaten, but he soon found that a taste could be cultivated. There is money in grape culture if you plant the right variety and bring the fruit in the market in a proper condition.

The doctor answered a question as to the best method of pruning by saying the proper way was to cut the vine back a short distance above the new wood. The next year he would continue this process. All pruning should be done with thumb and finger, when the wood is tender, and should not be neglected and finally done with a hatchet or saw.

"Soils and Fertilizers."

Prof. W. H. Jordan, of the State Agricultural College, was introduced and spoke briefly on the above subject. There is no subject, he said, that is more intimately connected with the business success of farming than the subject of fertilizing. Successful farming is a question of good crops, and all other questions must take a side seat. The statistics of the State Board of Agriculture, he said, show that the average cost of crops is greater than the average worth of crops. While some farmers are raising paying crops others are raising crops that pay them absolutely nothing for the money invested. A farmer's capital consists of two kinds, fixed and floating. His fixed capital is his buildings and his lands; his floating capital is his stock and fixtures. One reason for successful farming was that the farmer had too much fixed capital invested in proportion to his floating capital.

Fertility in soil depends on two conditions—the mechanical condition and chemical condition. We are apt to speak of fertility as based entirely on what is in the soil; but it should be remembered that the soil may have all the chemical requisites and still be in an improper condition as regards moisture, etc. If you want the best results, the soil must be plowed when it is thoroughly pulverized, and if it is not pulverized when plowed the roller must be used.

A soil is said to be a fertile one that contains the chemical properties necessary to grow a paying crop. The speaker gave at length a history of the plants and the various ingredients without which the plant cannot live, and said that the farmer must learn what things his soil is in need of and at once provide

it. Again, the necessary ingredients must not only be in the soil, but they must be there in such condition that the plants can get at them. This can only be accomplished by good tillage of the soil.

"Agricultural Education."

Dr. George W. Atherton, President of the State Agricultural College, was introduced and spoke for some time on the above subject. He said his theory of education was that for some purposes all education should be alike. Education in the proper sense of the word, is the training of the mind and not the training of the body. The training of the mind being the great object, all great thinkers have differed on the proper methods. Shall the mind be trained so that the work shall be done in a workmanlike or in a poor manner. Trade schools have proven to be of very little value, for the reason that you could not give the scholar a thorough mental training and at the same time give him complete practical instruction in a trade.

In every person's mind there is an aptitude to do a certain thing and to do it right. The great object in teaching is to instruct the mind to start from a right starting point and to go, by proper steps, to a right conclusion. The elements of theory and practice should be taught side by side. All principles should be taught in connection with their application. The true system of education is, not to make farmers, not to make lawyers, but to first make men, and afterwards to educate them up to their individual callings. There are many things that cannot be taught in the schools, but there is a way, he believed, of combining theory and practice in education to a great extent. In conclusion the speaker said that any education that turned the boy or girl away from honorable labor—that did not teach that labor was honored by the person performing it—was unsound education.

Upon the conclusion of Dr. Atherton's remarks, Dr. Wickersham called for a discussion of the subject, and Mr. H. M. Engle opened the discussion by saying that while there were a great many farmers who had been financially successful, and who had no education, yet if the secret of their success was discovered, it was pretty generally found that they owed their success to their parsimonious habits. Intelligent farmers, the speaker thought, were generally the most successful.

Mr. J. M. Frantz next spoke on the subject. He thought there were men who had succeeded and had succeeded well who had never had an agricultural education. The object in farming is to have it "pan out well"—to make two blades of grass grow where one only grew before. He agreed with all that was so ably said by Dr. Atherton, but still he knew of some of the most successful farmers who had scarcely had the advantages of even a common school education. He had a few men in his mind who had a peculiar faculty for making a success out of farming, and who could scarcely read or write and whose hands were scarcely properly washed more than once in three hundred and sixty-five days. There was no business which, if you want to practice it successfully, requires more mind—more thought—than does the business of practical farming, and the person who desires to be a successful farmer must cultivate his mind.

Dr. A. M. Dickey, of Bucks county, said it was the average farmer we wanted to reach. In his mind the average farmer was a man of animal content. This average farmer must be reached through the public school, where the true principles of agriculture should be taught.

Dr. Atherton closed the discussion by saying that he agreed with what had been said by those who knew of farmers succeeding who had no education. We all know of men who succeed in all pursuits who were unable to read or write; still, we hold that it is well for the average boy to know how to read or write. He held that whatever process of work fits a man for doing his work well is education, and this is what we want.

Dr. Wickersham contended that the principles of

agriculture should be taught in public schools located in agricultural districts. The elements of botany, chemistry, zoology, mineralogy, etc., are of the utmost use to farmers, and these should be taught in schools, even if to do so it were necessary to curtail in some measure the study of grammar and geography.

An hour was devoted to the asking and answering of questions of importance to farmers, after which the Institute adjourned until eight o'clock in the evening.

(To be continued in next number.)

AGRICULTURE.

Recuperating the Soil.

Sir John Bennett Lawes has written a chapter for the new edition of Harri's "Talks on Manure Restoring Fertility to the Soil," a subject that interests all our farmers who do not cultivate a virgin soil. It is a most valuable contribution, and shows how science may be applied with a view to dollars and cents. A relative of Mr. Lawes, having several thousand acres of exceedingly poor and worn-out land, consulted him as to the best method of treating it. The growth of crops with the aid of artificial manures is discussed, and it is clearly shown why this would not be profitable on such poor land. The plan decided upon was to make the production of meat the basis of renovation; to stop all tillage and endeavor to get the soil into pasturage by giving it the plant food to enable it to grow good grasses. A flock of sheep was to be allowed to run over the land during the day and to be folded there every night and fed one pound each of cottonseed cake. The use of sheep in renovating land is not new to our farmers, and has often been advocated in these pages, but the practice has rarely been presented in so systematic a manner. Sheep in flocks of 100, inclosed by movable fences or hurdles, upon a space 20 by 25 yards, and the folds moved daily, would in ten days cover an acre each, and the manure of 1,000 pounds of the cake would be well distributed upon this amount of land. This quantity of manure contains 77 pounds of nitrogen, 68 pounds of phosphate of lime and 32 pounds of potash. These fertilizers cannot be purchased in any artificial manure at so cheap a rate, since the increase in the weight of the sheep fed in this manner goes far to offset their original cost in the cottonseed cake.—*American Agriculturist*.

Fodder Corn.

Do not fail to drill in some corn for fodder, even if you have no pit to store it in. After long experience we are convinced that no farm crop pays better. There is no difficulty in curing it. All that is needed is to let it grow until fully tasseled, and then shock it up and let it stand in the field until freezing weather or until it is fed up. The large white Sugar corn is best—the stalks containing as much sugar as sweet corn, which has a habit of germinating feebly. Drilled into rich ground at the rate of ten or twelve kernels to the foot, the stalks will be large and juicy, but the cattle will eat every butt clean, even if they are an inch in diameter and have not been run through a cutter. Last winter we fed the yield of ten acres in the stable, and not a bushel of refuse was left from the entire crop. As an experiment we fed this fodder exclusively to twenty milk cows for a fortnight, and when the food was changed for a ration of bright timothy hay, with two quarts of Indian meal and four quarts of bran, the milk yield fell off perceptibly.

Varieties of Sweet Corn.

Last year twenty-six kinds of sweet corn were grown at the New York Experiment Station, and a record of the earliest of each was kept. This is only approximately correct, for the date of the first appearance of the silk was kept, and not the date when the corn had reached that point of maturity when it is known as "roasting ears." The earliest variety was Early Marblehead, which silked in fifty-

six days from planting. Next came early Narragansett, in sixty-one days. Pratt's Early took sixty-one days. Early Minnesota a sixty-two days. Crosby's Early sixty-eight days. Golden Sweet seventy days. Moore's Concord seventy-two days. Hixcox eighty-two days. Egyptian eighty-four days. Showell's Evergreen eighty-four days. Mammoth eighty-six days—or a full month later than the Early Marblehead.

As to quality, Dr. Sturtevant says we can only express our taste. Some people prefer a corn less sweet than do others. The No. 10 Ultra is exceptionally fine, but is late; Crosby's Early, to our taste, is the best of the earlies, although Early Marblehead is very good. The Golden Sweet we have not eaten of our own raising, but such as we have tried elsewhere has been particularly rich in flavor. The Black Mexican is white while in edible condition, but is apt to cook slightly blue-tinged, so as to cause the appearance on the table to be unattractive. Its quality, however, is very sweet.

Ploughing too Early.

We have noticed many acres of corn-stubble turned over for oats this spring before the ground was ready for the plough. There has been much rainy weather, and, as spring work presses, farmers are apt to grow impatient; but nothing is gained by ploughing heavy land when it is so wet as to pack. Every pressed lump will resist the entrance of root fibres foraging for plant food. The crop will suffer and the land be in a bad condition for grass or any other crop which follows in the rotation. The prevalence of wet springs makes it almost impossible to prepare the ground at once well and early for oats. Why not try the plan already adopted in many places of ploughing corn-stubble in the fall and then harrowing it for oats the following spring as soon as dry enough? This makes it possible to get the seed sooner—a point gained in the culture of oats—and leaves the land more mellow. Farmers who have tried this method are convinced that they secure a heavier crop, with straw less liable to lodge.

Ensilage Extracts.

We feed hay in the morning; at noon 30 pounds ensilage; at night the same, with the addition of one quart of bran and the same of meal. It increases the yield of milk and makes more butter and of a better quality. One whom we have supplied for thirteen years, says since we began to feed ensilage our butter is better than it has ever been before, even in summer.—*H. L. McElroy, Middlesex, Vt.*

I feed six milk cows 60 pounds each per day, and two yearlings 40 pounds each. I feed them nothing but ensilage 30 days; they gained in flesh.—*F. A. Hildreth, Proctorsville, Vt.*

I put in one load of long corn at one end, near the top; it raised a heavy heat and does not keep as well as the fine cut.—*P. K. Spaulding, Proctorsville, Vt.*

It rained four days during the time, and only enough was put in daily to keep the mass from heating, six or eight inches being needed. That which was put in while wet kept as well as any. One old ox was in bad condition, hide-boned and quite thin; after feeding ensilage a few weeks his hide became very loose and he appeared like a new ox, eats a bushel and a half of ensilage every morning with straw at noon and hay at night.—*S. W. Walker, Anson, Me.*

My cows have gained in milk, 20 per cent. since I began to feed ensilage, and the dry ones and yearlings, have gained in flesh. With 60 pounds of ensilage per day they eat a small feed of hay up clean. Two store hogs eat it, and it makes a cheap and handy green feed for hens; they eat it as they will grass in summer.—*J. W. Eastman, Lyndon Centre, Vt.*

We are feeding it to farrow cows twice a day, with a small feed of hay between. The cows gain in flesh and milk. The butter is of excellent quality. Pigs and poultry eat it well.—*Brown & Hunt, Albany, Vt.*

I feed cows 60 pounds of ensilage and five pounds of meal and bran each day in addition to hay in the

morning. I have never fed anything that made so good milk and butter, or so much of it.—*W. Z. Simons, Roxbury, Vt., in Mirror and Farmer.*

HORTICULTURE.

Fertilizers for Strawberries.

In a paper read before the New Jersey Horticultural Society in 1881, Mr. J. H. Hale, of Connecticut, advised the use of pure ground bone mixed in the proportion of three parts to one each of muriate of potash and dry ground fish as the cheapest fertilizer for strawberries. As to the quantity needed per acre, Mr. Hale advised 1,200 to 1,500 pounds when a fair crop was wanted, 2,500 pounds for a good crop, and for a big crop "all you think you can afford, then shut your eyes and put on as much more. It will pay every time." A Vineland correspondent writes that he has been trying this mixture faithfully since then, and after careful comparison he finds very little improvement in his crop. With him this fertilizer does not pay on strawberries, although on sweet potatoes it has a good effect. This only proves that Connecticut is not Vineland. It is another illustration of the fact that different soils need different treatment for the same crop. Experience on one farm is contradicted by results obtained on a neighboring one. Every farmer must make his farm an experiment station if he would work his land to the best advantage.

Making Sugar from Beets.

No single agricultural industry has made such an extraordinary increase in Europe as that of making sugar from beets. In 1874—5 the production of beet sugar there was 2,616,948,384 pounds. In 1878—9 this amount had increased to 3,479,269,000, or more than 30 per cent. in four years. In 1883—4 the production was 4,618,889,000 pounds, an increase of more than 30 per cent. in the brief period of ten years. When we stop to reflect that the beet sugar product of Europe is now double that of the entire sugar consumption of the United States, and was worth \$230,000,000, we get an idea of the dimensions this interest has attained in Europe. Can any man suggest any good reason why we cannot and should not be following the example of Europe in this particular? It would keep \$100,000,000 in the country and give employment to hundreds of thousands of people.—*New Era.*

The Profits of Fruit Growing.

An article on "Seasonable Hints on the Culture of Fruits, Flowers and Vegetables," which appeared a short time ago in the *American Cultivator*, published in Boston, Mass., contains the following paragraph: "The first thought of fruit growers is to look after cheap land. The distance from market is left to railroad companies to settle. Of late years growers have been learning other lessons. It is the labor, and not the cost of land, which ruins a fruit grower; and land at high figures, where the expenses of labor and marketing are less, has been found the most profitable. Edwin Satterthwaite, about ten miles from the heart of Philadelphia, has found such a fruit location very profitable, and so have the Shearers, of Reading, Pa. This town has but 50,000 inhabitants, yet it consumes all the fruit from Shearer's 100-acre farm, besides much from numerous other growers. And one of the brothers has been encouraged to put in 365 acres in fruit near the town. The 100 acres of Christopher Shearer made sales of over \$12,000 last year."

Cultivation of Currants.

The currant has always been a universal favorite, not so much, perhaps, because of the real nature of the fruit as because of the extreme hardiness of the bush, which hitherto has withstood a good deal of neglect, with little or no attention. After once planting them in some remote corner of the garden, or under the fence, they are left severely alone. But with the currant, as with other things, as soon as they become scarce, the demand for them will in-

cre-se; and better price rule. My plan of cultivation—which I do not claim as the best, but which has always succeeded with me—is simply this: As soon as the leaves are off the bushes in the fall, I go through them with a sharp knife and trim out the old branches, and any of the new that show signs of borer, and cut back all new shoots one-third. I then rack up all the wood that has been cut out, and burn it to make sure of destroying all insects that might cling thereto. This done, I work in deeply—with the spade—three or four shovelfuls of good, well-rotted barn manure around each bush, to the space of about three feet; the ground between the rows is now either plowed or spaded, and the whole given a liberal top-dressing of light manure, and the work is done for the winter.

As soon as the first worms appear in the Spring—which is early—I take a heaping tablespoonful of powdered white hellebore, and thoroughly wet it with boiling water—a quart or so. I now turn this to a pail of clean cold water, stirring constantly all the while, till every particle of the powder is well mixed. It is ready now for application to the bushes, which is done with a large watering pot, taking great care to thoroughly sprinkle every bush; repeat this as often as the worms reappear. Usually two applications, one early in the Spring, and the other just before the fruit ripens, are sufficient to keep down the worms. Keep the ground around them mellow and free from weeds, and if at any time through the summer a branch is seen to wilt, it is immediately cut away and burned, as such is the "sign of the borer."

Following this method of cultivation, I have never lost a bush or had a poor crop of fruit. And I bespeak the same success to any who will take the same trouble for the sake of this delicious fruit. It will pay.—*Practical Farmer.*

HOUSEHOLD RECIPES.

MILK TOAST.—Saturate stale bread with hot milk (and cream), lay out the slices on a platter and pour over them the white sauce, made by thickening milk with a little sifted Graham flour, cooked five minutes.

MILK TOAST WITH EGGS.—Make the toast as above, with or without the white sauce, and break upon each slice of bread after it is laid upon the platter or after it is served on the plate, an egg cooked in the shell from seven to ten minutes in hot water, but not boiled. The yolk may be stiff or soft, but the white should be as soft as custard. "Practice makes perfect" in cooking eggs after this fashion, and there is no better known fashion of cooking eggs for food.

OATMEAL CRACKERS.—Put one pint of fine oatmeal (Schumacher's A, preferred), with one gill plus one spoonful of cold water. Brail thoroughly, let it stand five minutes, and roll out carefully on a well floured board, to one-fourth of an inch in thickness, keeping it together as much as possible; cut in squares with a knife, and bake in a very moderate oven until quite dry. Some add a spoonful of sugar.

STRAWBERRY BLANC MANGE.—Take a quart of hulled strawberries and spread them on a dish, sprinkling over them about a quarter of a pound of pulverized sugar, letting them stand for six or seven hours, or sufficient time to allow the juice to flow from them. Then have made of gelatine a good stiff blanc mange, sweetened to taste, and stir into it the juice which has oozed from the berries. When all is mixed thoroughly, put it into a damp mold and set it in a cold place till needed for serving.

STRAWBERRY SALAD.—Strawberry salad is simply a mixture of strawberries and red and white currants, equal portions of each, or raspberries and cherries may be added to it. It is to be eaten with sugar and cream, and these should only be put on the fruit at the last moment.

STRAWBERRY ICE CREAM.—Take one pound of fully ripe, fresh strawberries. Add half a pound of pulverized sugar. Mash them well with a wooden spoon and rub them through a fine hair sieve. Take

the juice and mix with it a pint of rich cream and the juice of a lemon (or the lemon may be omitted). A few drops of cochineal may be added to heighten the color. It is then ready for the freezer.

STRAWBERRY WATER ICE.—To one pound of ripe strawberries add half the quantity of red currants. Bruise them well, adding a pint of clarified sugar. Rub all through a hair sieve and freeze.

THE IDEAL ICE CREAM.—The ideal and almost unattainable ice cream is made by the following this recipe: Two quarts of Cream (not milk), one pound of pulverized sugar, two eggs. Beat the eggs; then beat the sugar with them; then the cream. Let this just come to a boil; then remove from the fire, flavor with vanilla, strain it through a very fine sieve, or, if you have none, a clean new piece of cheese cloth will answer in place of one. When cool put it in the freezer and freeze, stirring until it is too hard to turn any longer.

AN APPETIZING SALAD.—An appetizing salad is easily made of cucumbers and tomatoes. Peel and slice the cucumbers and let them stand in cold salted water while you prepare a plain salad dressing. Line the salad bowl with lettuce, if possible, and slice the tomatoes and put a layer in the bowl; season with salt, sugar and pepper; then put a layer of cucumbers in seasoned in the same way, and so on until the bowl is full. Pour the dressing over the top, or you may put all the sliced cucumbers in one layer in the bowl, and lay the sliced tomatoes over the top, just as you prefer.

MRS. BARCOCK'S COMPANY CAKE.—A cupful and a half of sugar, a half cupful each of butter and sweet milk, three eggs; beaten separately and then together, two cupfuls of flour with a teaspoonful of cream of tartar, and a half teaspoonful of soda sifted through it; flavor with extract of lemon.

FRUIT JUMBLES.—One pound of sugar, one pound of butter, one pound and a quarter of flour, six eggs, half a pound of currants, a little soda and nutmeg. Mix the butter, sugar, spice and eggs, then the currants, next the soda, and lastly the flour.

CREAM PIE.—Bake a crust in a large pie pan; lift it out on a plate; for filling take one pint of very rich milk; boil three-fourths of it; with the remain, ing one-fourth stir two tablespoonfuls of cornstarch; add to the boiling milk, stirring all the time; then add one-half teacup of sugar, then the yolks of two eggs, well beaten and thinned with a little milk. Remove from the fire; flavor with vanilla and nutmeg, and pour into the crust. Whip the white; add one-half teacup of sugar; frost the pie and place in the oven to brown slightly. Serve cold.

STRAWBERRY CHEESE-CAKES.—Take a quart of a pint of hulled strawberries, selecting those which are of good flavor. Put them in a bowl and, after mashing them thoroughly with the back of a wooden spoon, sweeten with a tablespoonful of pulverized sugar (if the berries are very tart more sugar may be required); then stir in the mixture two well-beaten eggs. Now line your pattypans with good pastry and fill them two-thirds or three-quarters full with the mixture. See that your oven is hot when you put them in, and let them bake for ten minutes.

STRAWBERRY FOOL.—Take one quart of fully ripe hulled strawberries and put them into saucenpan with a quarter of a pound of white sugar. Put them on a moderate fire where they may stew gently, covering the saucenpan closely and stirring them occasionally to keep them from burning. When the fruit has stewed for ten minutes, remove it from the fire and rub it through a fine hair sieve with the back of a wooden spoon. Then set it away, and when it becomes cold stir in enough new milk—or, what is better, still, cream—to make it about as thick as custard. Place on the ice till thoroughly cold and serve.

SARDINES picked up fine and mixed with cold boiled ham, also minced fine, and all well seasoned with a regular mayonnaise dressing, make a delicious filling for sandwiches.

FRIED POTATOES.—A good way to warm over cold

potatoes is to first chop them, not too fine; heat some butter in a frying pan, put the potatoes in a few minutes; just before taking them from the fire stir in some well beaten eggs; serve hot; garnish with parsley.

FOR CHICKEN TOAST take the remains of a cold roast or boiled chicken and chop up fine, put in a saucenpan, season with salt, pepper and the round of an onion finely minced, add a small piece of butter, one tablespoonful of cream and just enough water to cover the chicken, simmer all together 15 minutes, break over the meat two or three raw eggs, stir all together, pour it upon nicely buttered toast and serve.

POTATO SOUP.—A quart of milk, six large potatoes, one stalk of celery; pare potatoes and boil thirty minutes, turn off the water and mash fine and light; add the boiling milk and the butter, and pepper and salt to taste; rub through a strainer, and serve immediately. A cupful of whipped cream, added when in the tureen, is a great improvement. This soup must not be allowed to stand, even if kept hot. Served as soon as ready it is excellent.

APPLE SNOW.—Reduce half a dozen apple to pulp; press them through a sieve; add half a cupful of powdered sugar and a teaspoonful of powdered sugar and a teaspoonful of lemon extract; take the whites of six eggs, whip them several minutes, and sprinkle two tablespoonfuls of powdered sugar over them; beat the apple pulp to a froth, and add the beaten eggs; whip the mixture until it looks like stiff snow, then pile it high in rough portions on a glass dish. Garnish with spoonfuls of currant jelly.

APPLE AND ORANGE PIE.—Cover the inside of a tin pie-plate with rich pastry, and lay upon it some oranges cut in thin slices. After removing the peel place over them some thinly sliced tart apples. Fill the plate with alternate slices of apples and oranges, and a layer of white sugar over each, and a tablespoonful of water over the top layer of oranges, unless the apples are very juicy. Cover with pastry and bake for half an hour, and sprinkle white sugar over the top of the pie when it is served.

IMITATION APPLE PIE.—One teacupful bread-crumbs; one teacupful sugar; one teacupful tartaric acid; one nutmeg grated into the above ingredients, a little water to mix it.

LITERARY AND PERSONAL.

U. S. DEPARTMENT OF AGRICULTURE.—Division of Entomology. Bulletin No. 4; being reports of observations and experiments in the practical work of the division; made under the directions of the Entomologist, together with extracts and correspondence on miscellaneous insects; 102 pp. royal octavo, including index. From the following table of contents the scope of the work will become manifest, and approximately also its general usefulness to those who read and understand.

1. Introduction. 2. Report upon Crickets and hop-insects. 3. Observations on the Rocky Mountain locust and other insects in the northwest during the summer of 1883. 4. Preliminary report of observations upon insects injurious to cotton, orange, and sugar cane in Brazil. 5. Reports on the effects of cold on the scale insects of the orange in Florida. 6. Extracts from correspondence. 7. Additional notes on the cultivation of *Pyrethrum* in the United States.

This reminds us that we have the *Pyrethrum cinerifolium* at this time vigorously growing in our garden, from seeds sown there, more than three years ago; which, in a very few days, will be in expanded bloom. We think there is no difficulty in cultivating it anywhere in the middle and Southern States. That which we dug up and took into the house in winter, has perished; but that which remained out of doors and has stood the rigors of two winters, is now growing more vigorously than it has grown at any former period; and has spread to three or four times its original dimension. It seems as sure as the common "Ragweed."

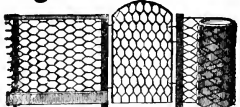


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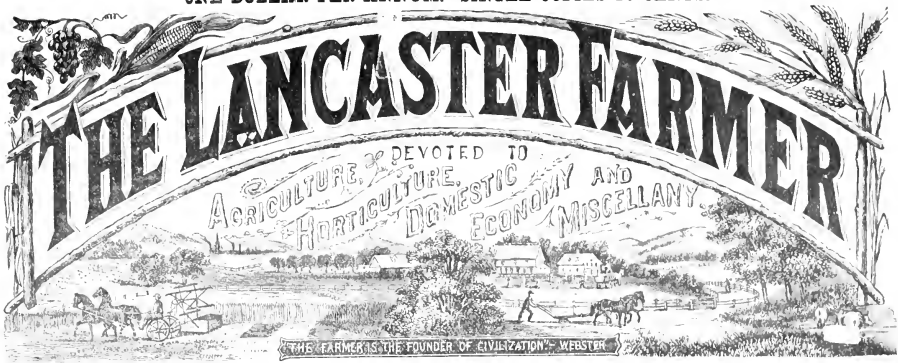
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LANCASTER, PA., JULY, 1884

JOHN A. HESTAND, Publisher

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

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On and after SUNDAY, JUNE 24, 1883, trains leave
the Depot in this city, as follows:

WE-TWARD.	Leaves	Arrive
Pacific Express.....	Lancaster, 1:55 a. m.	Harrisburg, 2:55 a. m.
News Express.....	6:25 a. m.	7:30 a. m.
Way Passenger.....	6:50 a. m.	8:50 a. m.
Mail Train via Mt. Joy.....	9:30 a. m.	10:50 a. m.
Mail No. 2 via Columbia.....	9:35 a. m.	1:05 a. m.
Niagara Express.....	9:45 a. m.	10:55 a. m.
Hanover Accommodation.....	9:50 a. m.	Col., 10:20 a. m.
Fast Line.....	1:53 p. m.	2:35 p. m.
Frederick Accommodation.....	1:45 p. m.	Col., 2:15 p. m.
Lancaster Accommodation.....	2:30 p. m.	4:00 p. m.
Harrisburg Accommodation.....	2:50 p. m.	7:00 p. m.
Columbia Accommodation.....	7:30 p. m.	Col., 8:15 p. m.
Harrisburg Express.....	7:40 p. m.	8:50 p. m.
Western Express.....	11:10 p. m.	12:25 a. m.

EASTWARD.	Lancaster.	Philadelphia
Mail Express.....	12:12 a. m.	2:55 a. m.
Philadelphia Express.....	2:27 a. m.	4:25 a. m.
Fast Line.....	7:45 a. m.	7:50 a. m.
Harrisburg Express.....	8:10 a. m.	10:20 a. m.
Columbia Accommodation.....	9:00 a. m.	11:45 a. m.
Seashore Express.....	12:05 p. m.	3:15 p. m.
Johnstown Express.....	2:20 p. m.	5:05 p. m.
Dry Express.....	5:25 p. m.	7:25 p. m.
Harrisburg Accommodation.....	6:45 p. m.	9:45 p. m.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 1:55 p. m., and runs to Frederick. Hanover Accommodation, west, connecting at Lancaster with Niagara Express at 9:45 a. m., will run through to Hanover daily except Sundays.

Harrisburg Express, west, at 7:40 p. m., has direct connection to Columbia and York. The Fast Line, west, on Sunday, when flagged, will stop at Downingtown, Coakleville, Parkersburg, Mount Joy, Elizabethtown and Middletown. The Johnstown Express from the west, will connect at Harrisburg on Sundays with Sunday Mail east, for Philadelphia, via Marietta and Columbia.

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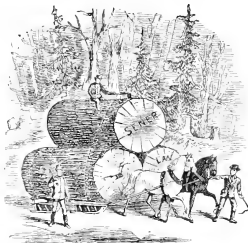
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Feb-5m

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Nov-17

The Lancaster Farmer.

Dr. S. S. BATHYON, Editor.

LANCASTER, PA., JULY, 1884.

Vol. XVI. No. 7.

EDITORIAL.

JULY.

"And one rode out from all the rest
Upon a rampant lion,
He seemed to be of nature's lords
A most imposing sion;
Around his swamy brow was wreath'd
The ripening ears of corn,
His right arm bore the summer fruits,
His left a green hawthorn;
Stern was his look and sore his breath
As Africa's simoon,
Behind him hung in recking gore
The head of vanquish'd June.
And then among the tinted host
There rose a feeble cry,
'Ye mortals of the thrifty earth
Make way for hot JULY.'"

July is the seventh month of the year, according to our present calendar. It so was named by Mark Anthony, in honor of Julius Caesar, who was born in it. The year, as regulated by Julius Caesar, was continued to be observed till it was corrected by Pope Gregory XIII., in 1582. After that period the months were set back about fourteen days, creating what was called "New Style," as contradistinguished from "Old Style," when all the months commenced fourteen days later than they do now.

Before this month received its present name it was called *Quintilis*, or the fifth month, according to the old Roman calendar, in which *March* was the first month of the year. During the month of July the sun enters the sign of *Leo*, or *Lion*.

The Latin name is *Julius*; the German, *Juli*, from the genitive *Julii*; Prussian, *Juli*, *Juliot*; French, *Juillet*; Spanish, *Julio*; Portuguese, *Julho*; Italian, *Luglio*. Although, theoretically, the summer solstice, or 21st of June, is regarded as *midsummer*, yet practically that annual epoch does not occur until the 15th of July; and from that period to autumn, the great vegetable kingdom, in our latitude, is mainly engaged in maturing and ripening its fruit.

July is the culminating point of a good deal of hard labor to the farmer, yet not so much as, as necessarily was, long years ago, when everything was done "by hand," and before improved implements and machinery were invented and introduced. It is the great *harvest month*, the demands of which urge him forward at a speed almost beyond his physical energies; for, when the time comes for his crops to be harvested, without a peradventure, *they must be harvested*, or he is in jeopardy of losing the compensating results of his long and weary toil. "When the scythe, the sickle, the cradle, and the hand-rake, were his only helpers," the harvest was saved only through much sweaty manipulation. All this is changed now, and the labor reduced at least a hundred per cent.; or, if it is not so, it must be in some antiquated corner of the world:

"Where naught but savage monsters roar;
Where love ne'er deigns to dwell."

In this month ought to be sown the various root crops for cattle feed in the following autumn and winter—such as *Ruta Bapas*, *Mangel Wurzels*, and other roots. A reliable authority says: "It has been ascertained by actual experiment frequently made, that these root crops may be raised for only a few cents per bushel." The same labors in sowing, planting and cultivation that obtained in the month of June, may be continued in this month, with very few exceptions. It is still time to plant *potatoes*, and *cucumbers*, for pickles; also towards the end of the month, *spinach* may be sown; also *turnips*, and *celery* may be transplanted. But by all means whatever is sown or planted, get the best. There is no economy in buying cheap seeds, plants, shrubs, or trees. In most cases it is only labor in vain. Should there be an early autumn, some of these may be "nipped in the bud," but if a late one, the labor of the farmer will be amply compensated. There always *have* been, there always *will* be, some risks to run, in all the labors that man engages in, therefore he must exercise some *caution*.

THE FARMERS' INSTITUTE.

"The Farmers' Institute," which convened in the Lancaster Court House, on the 3d and 4th of June, 1884, and a synopsis of the proceedings of which is published in the June and July numbers of the *FARMER*, was, under all the circumstances, an unequalled success, so far, at least, as the matter related to the programme, and the distinguished speakers from abroad. We rejoice at this, on account of the encouragement it affords to the leading and working members of our local society, who were instrumental in inaugurating it and carrying it into effect; for they deserved such a public recognition. Although the result was satisfactory to those who originated it, planned it and conducted it from its incipency to its final consummation, the men for whose instruction and edification it was mainly intended were not present *en masse*, as they certainly should have been.

Still it was a good beginning, and it is fervently hoped that it may prove a prolific "nest-egg," from which *Time* will hatch a numerous and vigorous "brood."

The present generation may never have a realizing conception of the benefits of such gatherings of the farming world, but depend upon it, generations *will* arise who will know what estimate to put upon such assemblages of the tillers of the soil. It is in vain to think of a return of the "olden time." "The seas have divided and formed walls of water whilst a whole nation passed in safety over its sandy bosom; hungry lions have refused their prey; and men, unhurt, have walked amid consuming flames, but never yet did *time* once pass return." Through an inspired oracle on the Isle of Patmos, nearly two thousand years ago, the fiat went forth, "Behold I make all things new," and it "will not return void." Time may be slow, but nevertheless it

is *ordered*; and, if *God's* humanity cannot mould its tide, then it must swamp, "that's all."

When the Governor—the highest dignity of the Great Commonwealth of Pennsylvania—condescends to throw his social and moral weight in behalf of the interest of the farmers of Lancaster county, when the distinguished chief of the National Department of Agriculture turns aside from the routine of his onerous duties to vouchsafe his special and personal recognition of the tillers of our prolific soil. When the professional functionaries of our public State Institutions forego their home duties and travel miles to impart the benefits of their larger experience to their co-laborers in the vast field of experimental agriculture, their disinterested ministrations should meet with a reciprocation commensurate with the great interests involved in the gatherings of the husbandmen of the "Keystone" Commonwealth. Apathy, lethargy, indifference, and indolence, should, at least for the time being, succumb to the dictates of energy, enterprise, sociality and intelligence. No matter how successful an ignorant or illiterate farmer may be, his success is not a sequence of his ignorance and illiteracy, but in spite of it, and to argue otherwise, would be an illustration of something worse than either—namely, *bigotry*. If he possesses intelligence along with his thrift as a farmer, he will be the more able to enlighten his neighbor; because he never can divest himself of the injunction—*"Freely ye have received, freely give."*

If an intelligent and educated farmer fails, or is thriftless, depend upon it, it is not because he is intelligent and learned, but through a perverted use of these mental endowments. Moreover, there is an inner, or moral success that is of far more value to himself and to society than merely physical, or outward thrift, and this he may never appreciate so long as he remains under a cloud of ignorance and illiteracy. When there was no such thing as literature there was some excuse for being illiterate; but that day is past and gone, never to return.

Having "laid his hand to the plow"—according to the oracles of Divine truth—it is criminal to "look back."

THE COUNTY FAIR.

The fair advertised to be held in McGran's Park, in September next, promises to be an exhibition of no ordinary character, creditable to its projectors, its exhibitors and its patrons. Its beautiful and artistically executed posters carry a promise upon their very face that give assurance of a characteristic realization. The pressure of amusement is becoming so strong, that in order to mutually stimulate both, it seems allowable to blend amusement with utility. It seems utterly folly to assume that man ought not, at proper times and at proper places, be entertained with some spectacle that instructs and amuses him. Why was such a word as amusement coined if it is to

have no outbirth in acts and facts? And, if it has, who so fit to rationally enjoy it as intelligent beings? And among such intelligences none so appreciative as man. Of course, care should be taken that innocent amusement should not be perverted or allowed to run into abuse; but because the illiterate, the ignorant or the vicious may abuse it furnishes no argument against its use. In a "land of liberty" it seems impossible to legislate morals into the human mind. The fact is, without freedom there can be no such things as good morals. Although, for the safety of society and for personal decency's sake, it may be politic to restrain man from evil, through pains and penalties, but it may not make him a better man "at heart." If we prohibit the exhibition of certain amusements at fairs where we are going to fix the limitation? for utility and amusement are not divided by discrete degrees—but rather by continuous degrees—and, that being the case, their boundaries will more or less blend or overlap each other; and, therefore, it would be difficult to draw a line of demarcation or separation without invading or doing violence, unnecessarily, to that which is not only harmless but absolutely legitimate and useful.

In saying this we feel it incumbent to add, that we have not witnessed a race, or a trial of speed, for more than fifty years; because such exhibitions, somehow, never afforded us any amusement, and certainly no moral or intellectual edification. Still we would not compel other men to abstain any more than we would have other men compel us to indulge in these and kindred recreations. We abstain from such amusements in perfect freedom, and we accord the same freedom to others. Even if such exhibitions consist of "wheat and tares" we are admonished by high authority to let them grow together until the time of harvest comes.

THE MIDGES.

These delicately formed, and slender-limbed insects, are not a mere "fudge," simply because they are only a midge, for their strength, and hence their ability to do evil, lies not in their individual power, but in their numbers. They all belong to the great family TRIPLEDE, of which the common mosquito is the type, nevertheless, the species are so numerous, and their transformations so varied, that it has become necessary to refer a restricted number to a new family—CECIDOMYIIDE—of which the "Hessian Fly"—*Cecidomyia destructor*—is the type. Probably none of them do much good, if any, although some of them may not do much harm. The wheat crop of our country, at intervals and in many places, has been greatly injured if not totally destroyed by the ravages of the "Hessian-fly" and the "wheat-midge"—they are both, to all intents and purposes, midges and also flies, being dipterous, or two-winged. For the past five or six years the "clover-seed midge," (*Cecidomyia leguminicola*, Lint.), has been looming into prominence in various remote localities in our country, but the present season they have shown themselves conspicuously in Dauphin county, and, for aught that we know to the contrary, may be domiciliated in the county of Lancaster. We call the attention of our readers to

an article on this subject written by Secretary T. J. Edge, of the "State Board of Agriculture," taken from a Harrisburg paper.

We are under obligation to the secretary for specimens of the larva of this insect, from which we hope to develop the fly.

They were the first we had seen—in point of fact, we absolutely have not seen a clover field, nor a single growing "head" of clover, the present season, we have been so closely engaged in our secular occupation. This midge has the power of preventing the development and ripening of clover seed, and there seems to be no other remedy than, for a time, to discontinue the cultivation of clover.

BARK LOUSE OR SCALE INSECT.

It is frequently said, that "History repeats itself," and it may as truthfully be said, that there are periodical repetitions of a redundancy of certain insects, although the periods may be irregular. A case in point occurs the present season, although it may not yet have attained its maximum manifestation. The year 1854 was remarkable for the prevalence of an insect that infested the Linden and Maple trees in Lancaster city and county, in countless numbers. In front of the Court House, extending from "Sprecher's agricultural implement and seed store" to the corner of East King and Duke streets, was a row of tall Linden trees, and these were so badly infested that it was deemed best to cut them all down and burn all the branches. These insects did not appear suddenly or arbitrarily, for they had been noticed in increasing numbers for two or three years previously, but in that year they were so numerous and affected the trees so injuriously that they attracted almost universal attention. Our present Court House was then in process of being built, or at least not yet finished, and we had been consulted, or interviewed, in reference to them, and in the absence of any previous knowledge of them, or any entomological literature on the subject,

we suggested cutting them down and burning them, and our suggestion was carried into effect, although a more beautiful row of trees would have been hard to find. We had published a brief article on them, faintly estimating and intimating their numbers, in one of our city newspapers, which was quoted in the *Public Ledger* and other Philadelphia papers, for it appeared that the same insect was present among the Maple and Linden trees in that city. A small branch, about twelve inches in length, was brought to us perfectly infested with the insects through its entire length and upon this we based our calculations. We severed one scale and the cotton-like mass attached to it, in which we counted 500 eggs, and we were not sure that we counted all of them. The branch, as near as we can recollect, contained one hundred scales, which would aggregate 50,000 eggs, each capable of producing an insect. According to this ratio, one small limb, containing, with its laterals, thirty feet (which was a moderate estimate) yielded 3,000 scales, containing 500 eggs each, aggregating the enormous number of 1,500,000 eggs, and ultimately that number of insects. But the trees were large, and each containing not less than one hundred such limbs, the multiple of which would amount to 150,000,000 eggs, and this number multiplied

by ten—the number of the trees footed up 1,500,000,000.

In view of these enormous results, at the request of the publisher of the *Pennsylvania Farm Journal*, we prepared a brief paper, accompanied by rude illustrations, provisionally naming the insect *Coccus innumabilis*, which were inserted in the journal aforesaid; and, although the species was subsequently transferred to the genus *Pobirinia*, it appears that this was the first name and record the insect had received, although it had been afterward described under other names. After disgusting and enervating many favorite trees, the insects finally passed away, and so completely so, that on a subsequent occasion when we were requested to furnish specimens, we could obtain none in the city or county of Lancaster.

And now, we are likely to have a repetition of 1854. A branch of a Silver Maple tree was brought us from Ephrata, as fully infested as were those of thirty years ago. We noticed a few two years ago. Last summer they had greatly increased in number, and the present season exhibits a still greater increase. They also infest grapevines, and on one occasion we removed them from our vines entirely by "hand-picking," and when this is done before the young are hatched from the eggs it is effectual. In 1854 the Linden was a predominating tree in Lancaster city, but through this insect and the "Linden-tree borer," (*Synchlora vestita*) it has become almost obliterated. The "Countless scale," in the absence of the Linden is quite satisfied with the maple (*Acer dasycarpum*). There seems to be a developmental crisis in its history, after which it recedes, but whether it has reached that point, the future alone can demonstrate. Taken in time, it would be easy to accomplish its extermination, but people are heedless or indifferent about it until it becomes too late or too numerous to be approached by a remedy.

The scales adhere so closely to the branches during the winter season, and are so nearly the color of the bark of the trees, that they elude observation, and only become conspicuous in the spring or summer, after they begin to secrete the white lossy, or cotton-like substance, in which the eggs are invested. The eggs are a sulphur yellow in color, and the young when they first appear are of the same color and size. They have two very dark eyes, six white translucent feet, two whitish antennae, and two anal, or tail-like appendages, with a few lateral bristles, but none of these are visible without the aid of a magnifier. About the last week in June and the first week in July, probably earlier or later, according to temperature or other conditions, the young come forth and begin to scatter over the trees, until they find a favorable location on the young and tender branches. They occur in such countless millions that perhaps not more than one or two in every thousand find a congenial lodgment, but these, when fully developed, in many instances, are capable of covering the whole surface of the branches, so that none of the bark can be seen; but, usually, on the larger branches, they are mainly confined to the under sides. Of course, many millions, at this time are washed off by drenching showers of rain. In the absence of rain a

dash of soap-suds, diluted lye, or extract of tobacco would kill them, but where the trees are large and many, the job would be a formidable one—too much so, perhaps, for any one to undertake it. Before the leaves appear they can easily be rubbed off with a stiff brush, if they are within reach. They are preyed upon by parasites, conspicuously by a black "Lady-bird," (*Chilocorus bicephalus*) both in its larva and mature states, but these unfortunately never occur in numbers sufficient to make any very great impression upon them.

Doubtless in a few years they will again pass away, as they have in a former time, which is a consolation to most people, especially to that kind of people who desire their extermination by proxy, or by remedial imputation, instead of working out the salvation of their trees by their own active co-operation. No doubt it would be very convenient, and of easy application, if insects could be exterminated or expelled through some sort of invocation or incantation, so that the remedy might be operative whilst the subject of insect spoliation was lying on his back abed, or engaged in some other more profitable occupation—something like boring a gimlet hole in the trunk of the tree, introducing a cathartic and then plugging it up, and leisurely waiting for a favorable result; or by "blowing upon the tree, in connection with certain catalistic words, "three times repeated," some of which savor of profanation. Noxious insects are stern facts and must be met and treated as such—facts that cannot be ignored with impunity—they require to be looked after with as much vigilance as any other facts involving the interests of the farmer. A single "squash-bug" destroyed as soon as it issues from its winter cover early in the spring will save the trouble of destroying hundreds of them later in the season; and the same may be said of the "Colorado Potato-beetle." The "sack-bearer" early in the spring, dangling from the branches of the trees, can easily be removed before the foliage appears, if only a little ordinary observation is exercised.

"Rose Slugs," being within convenient reach, may be readily exterminated if people only will. Of course, there are many minute species of insects, that from their very small size and immense numbers baffle human skill, but even these can be mitigated, if not totally destroyed, by being vigilantly before hand. Under any circumstances, don't put off attention to insects until you have nothing else to do. "There is a time for everything under the sun," and in nothing is this more absolute, and more imperatively enjoined than in its relation to noxious insects. Those who would fight successfully against the "Bedouins" of vegetation, must "be up and bedouin."

It requires a large quantity of water to dissolve a small proportion of plaster. It produces the results on rocky, springy soils, but has little effect in the vicinity of the seashore. It is valuable in assisting to fix the volatile set free in decomposing material.

A MEMBER of the Elmira Farmers' Club opposes the use of breast collars on driving horses, for the reason that it is injurious, by drawing the shoulders of the animals together thereby preventing a development and expansion of the breast, especially of colts.

WATER.

Water is one of the most essential physical elements in the vast storehouse of nature, second only to atmospheric air, and without it, neither man, animal nor plant, could long exist; and so far as it concerns the health, comfort, and happiness of the human family, the condition of its purity is involved; we accordingly, make room in this number of the FARMER, for the interesting analysis of the different kinds of water in use in Lancaster City, and what applies to the water of the city, will also apply, so far as it goes, to the water of Lancaster County. Prof. Thos. P. Baker, of the State Normal School at Millersville, has wrought a good work for Lancaster City and County, in placing his important analysis before the public; and, if the public is not benefited thereby, it will be because it does not read, or read, does not heed. It is true, there may be a large class in the community who pay little regard to the quality of water, simply because they use as little of it as possible, except perhaps for an occasional quasi ablution, but even these may be more benefited by pure water than they apprehend, or are willing to acknowledge.

Of course, water must be subordinated as a servant and not as a master, in which case it is like every other "good and precious gift that has been vouchsafed to man." There is a mawkish sentimentality admonishing people to drink huge drafts of water, whether they are thirsty or not, merely because water is good; nevertheless, it would be better to drink more water and less of its vile and meretricious substitution, so common and so plentiful at the present day. But, there are many uses for water, in the domestic economies of life, other than using it as a beverage, and the question of its purity is just as important in these respects, as it is in the quenching of thirst. Surely, in culinary preparations, and for cleansing purposes, the purer the water the more healthful and satisfactory will be the results of its intelligent use.

An Interesting and Important Analysis of Lancaster Waters.

The following analyses of twenty specimens of drinking water, collected in this city by Mr. Chas. A. Heinitch, were made by Prof. Thos. P. Baker, Ph. D., who so ably fills the chair of Physics and Chemistry in the Board of Instruction of the State Normal School of Millersville. Although not made under any public auspices or authority, we regard them as of sufficient interest and importance to lay them before our readers, and to thank Messrs. Baker and Heinitch, in behalf of the public, for doing so good a work as a labor of love:

Analysis of Well, Cistern and Hydrant Water.

C. A. HEINITSH, ESQ.—Dear Sir: I have just completed the analysis of the last five samples of water received from you. These, with the samples previously analyzed make twenty specimens of different Lancaster waters which I have examined, and I now send you the results of the examination.

The samples were all received in clean bottles, carefully labeled and corked; you certainly deserve great credit for the interest and care you took in collecting them.

The following table presents the results in a compact form:

Number	Local ALITY	Date of obtaining samples	Free Ammonia	Abundant Ammonia	Chloride	Sulphide	In Ferrous	Approximate Ammonia
1	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
2	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
3	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
4	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
5	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
6	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
7	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
8	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
9	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
10	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
11	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
12	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
13	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
14	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
15	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
16	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
17	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
18	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
19	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.
20	127 Market street—near West King—middle pump.	May 15	7.80	0.075	16.37	0.122	37.31	Very Large.

Free ammonia indicates the presence of decomposed organic matter, the ammonia being one of the products of the decomposition. When it is present in large quantities it generally proceeds from the decomposition of urea, derived from filthy matter with which the water is polluted.

The excessive amounts of free ammonia in 1, 10 and 15 are certainly dangerous indications. It should be stated, however, that the large amount of this product in number 15 is due not only to organic matter washed from the collecting roof, but also to ammonia brought down from the atmosphere by the rain. Cistern waters generally contain considerable free ammonia derived from the atmosphere. This does not, of course, indicate organic impurity.

Abundant ammonia indicates the presence of undecomposed organic matter, matter which may undergo decomposition, and hence

increase the impurity of the water. Albuminoid ammonia is regarded as indicating a more dangerous condition of water than free ammonia. A water to be considered good should not yield more than .01 part in 100,000 of this product; if the amount exceeds .015, the water should be condemned for drinking or culinary purposes. By an examination of the table it will be seen that only samples 1, 5 and 15 yielded large amounts of albuminoid ammonia.

Chlorine, which usually occurs in water as a constituent of common salt (sodium chloride), indicates, if it is found in considerable quantities, animal or sewage contamination, for pure inland water contains very little common salt while sewage is heavily charged with it. The finding, therefore, of much chlorine is a suspicious circumstance; it is a strong indication of the connection of the well with a drain or cesspool. The presence of only a small amount of chlorine—of a quantity not greater than one grain to the gallon—indicates that any organic matter that the water may contain is of vegetable rather than of animal origin.

The *solid matter* (matter remaining on evaporating the water), which consists of dissolved mineral salts, together with dissolved and suspended organic matter, is not regarded as indicating a special condition of the water so far as its purity is concerned. The amount of this product, however, is generally found to vary with that of chlorine. It will be seen that this is true of the Lancaster waters.

The *hardness*, which is generally due to the presence of both lime and magnesia salts, indicates the amount of these salts contained in the water. Some of the Lancaster waters were found to owe a considerable part of their hardness to magnesia. Ten degrees of hardness indicates a *hard water*. The hardness of river water generally varies from two to six degrees. Most of the Lancaster waters are therefore very hard.

The presence of *nitrate*s in water indicates the oxidation of nitrogenous organic matter, and since such matter may be derived either from the soil through which the water passes or from sewage, etc., discharge into the well, the finding of nitrates does not afford sufficient data on which to base a conclusion concerning the organic quality of the water.

The waters all reacted *alkaline*, as do hard waters generally. Sediments were deposited in only a few of the bottles, and the quantities of these, with one exception (No. 20), were very small. The sediment of No. 20 is doubtless fragments of exhausted roots which have been so long subjected to the action of the water that, however much they may have contributed to render it impure previously, can no longer produce any hurtful effects. This water is shown to be one of the best of the Lancaster waters.

The conclusion is evident from the results of this analysis that most of the Lancaster waters which were examined are up to a high standard of purity; and that some of them are remarkably pure; and it is a fact worthy of notice, as shown by the results, that the common hydrant water is by far the softest, and, so far as organic purity is concerned, one of the best waters of Lancaster.

Yours respectfully,

THOS. P. BAKER,
STATE NORMAL SCHOOL, Millersville, Pa., June 13th, 1884.

THE KIND OF ICE WE USE.

It Can Adulterate Hydrant Water.

It is a common notion that water in freezing becomes pure, and that ice water, therefore, whatever may be the source of the ice, is the purest water that can be used. This, however, is a very erroneous notion, as it may be easily shown that, although water does purify itself considerably in freezing, it may contain, in the form of ice, any organic or inorganic ingredient that, in the liquid form, it holds in solution or suspension. Ice from hard water, for example, will contain a small quantity of the calcium carbonate in solution in the water, and ice from organically impure water will take up some of the impurities; suspended matter is simply mechanically caught in the solidifying mass, and appears again when the ice melts.

The purity of ice depends, therefore, upon the character of the water from which it is obtained. Since ice is now used so abundantly it is highly important that its purity be considered; indeed the supplying of pure ice is hardly of less importance than the supplying of pure water. An alarming epidemic which appeared in a Western town about two years ago was traced directly to the use of ice taken from a contaminated pond.

The purity of the water of dams and ponds, from which ice is generally taken, depends greatly upon the character of the water flowing into them. Such slowly moving water does not quickly purify itself because of its slow aeration, and when it becomes charged with organic filth the ice which it produces is a very unsafe as well as an undesirable product.

The Quality of Lancaster Ice.

In order to test the organic quality of Lancaster ice, I obtained through the kindness of Mr. C. A. Heimish specimens of the two kinds which constitute the principal ice supply of the city. One specimen was Conestoga ice, and the other pond ice from the pond of the Lancaster Carp Association. I also examined about the same time a specimen of ice obtained from a dam on the Little Conestoga near Groff's mill.

The Results.

The results of the analysis are given in the following table:

LOCALITY.	Parts in 100,000.	
	Ammonia.	Albuminoid Ammonia.
Conestoga near Lancaster	.0618	.0860
Fish Association Pond	.0613	.0637
Little Conestoga near Groff's mill	.0627	.0655

The specimens were broken into small lumps and these were carefully cleansed by washing with clean water, of particles of sawdust and any other adhering matter, and melted into chemically clean vessels. The Conestoga specimen consisted of both the solid and porous kind.

Referring to the standard of purity stated in my report of an analysis of Lancaster waters contained in the *New Era* of June 17th, namely, that a water to be considered good should not yield more than .01 part of albuminoid ammonia in 100,000, it will be seen that while the waters produced from these samples

of ice are of a high degree of purity, they are by no means the *best* waters. In regard to purity they are inferior to several of the Lancaster waters examined, including the hydrant water. If this hydrant water is as pure as it was a few weeks ago, it is contaminated considerably by mixing it with Lancaster ice.

The porous ice was found to contain a somewhat smaller amount of free ammonia, but a considerably larger amount of albuminoid ammonia, than the solid, and to hold a large amount of sediment. A large amount of sediment was also found in the pond ice. I send with this two small vials holding the sediments contained in 300 cubic centimetres (about a good sized tumbler full) of the porous Conestoga ice water and of the pond ice water. This suspended matter is of vegetable origin and consists doubtless mainly of broken stems of plants, etc., swept into the water by the autumn and winter winds. Only a trace of chlorine was found in the specimens examined; tests were not made for the nitrates.

A Word for Lancaster Ice.

The conclusion based upon this examination is that the Lancaster ice is organically considered of good quality, and is doubtless much better than that furnished in many of the larger cities. It would be much better, however, in using ice, not to be put into the water, etc., which we desire to cool as is so commonly done, but put it around a vessel containing the liquid to be cooled. By so doing any danger from the use of impure ice, and also the disagreeable suspended matter would be avoided. Convenient vessels could easily be made for the use of ice in this way.

THOMAS R. BAKER.

State Normal School, Millersville, June 27.

EXCERPTS.

It is said that wheat kept sealed in an airtight receptacle for some length of time will not germinate.

MR. MCKINSTRY, of Winnebago City, Minn., says with a dairy of 100 cows he can make 3 per cent. more butter by churning each cow's cream separately.

EARLY lambs must be kept growing to bring fancy prices. They will eat when they are from ten to fourteen days old, and there is nothing better for them than whole oats. Place the oats in shallow troughs where the sheep do not run.

THE report of the agricultural farm at Guelph, Ont., shows a gain of 30 per cent. in favor of 2-year-old steers above those fed till three years old. The young beef is claimed to be the cheapest in production and the best in quality.

IN reference to the circulation of the blood in cows that are in full flow of milk, the best authorities agree that the fat is immediately carried to the blood vessels and assumes the shapes of cells, which pass into the milk ducts and mammary glands, the latter being composed of an immense number of cavities. These are surrounded by blood vessels, from which the protein of the milk exudes and is absorbed into the interior of the cells through small tubes. These are the fat globules found in cream. These cells are analogous to rennet cells, and while the development is not thoroughly understood, it is believed that decom-

position takes place in the udder, where the separation is made.

PROFESSOR J. T. BURRILL, in the *American Naturalist*, refers certain blights and diseases of plants to the agency of bacteria. These organisms appear to be an active cause of the blight in pear and apple trees. The cells of blighted pear trees are destitute of the starch grains with which the healthy cells are filled, but traces of fermentation have been discovered in them, and bacteria have been uniformly observed in the juices of diseased pear and apple trees. The death of patches of bark on the trunk and larger limbs of apple trees, is ascribed by Professor Burrill to the same cause. The yellows of the peach tree have been shown, by the discovery of bacteria under the microscope, to be caused by a similar organism, as are also the blights of the Lombardy poplar and the aspen.

MR. JOHN MITCHELL, a farmer near Newburg, N. Y., has refused an offer of \$13,000 for a Holstein heifer and her calf. She is said to have produced the largest quantity of milk and butter ever before made from a single animal, viz: 103½ pounds, or about 51½ quarts of rich finely-flavored milk.

OLEMARGARINE, under the microscope, is seen to be made up largely of feathery crystals. These are the fatty substances from which it is made, and the appearance is very similar to that of lard. Pure butter presents a cloudy appearance, showing no crystals, the fat being in a homogenous state and not crystallized. When pure butter is adulterated by mixing with oleomargarine the crystals will not be so thick, but can be plainly seen under the microscope. Butterine has no crystals, because they are dissolved by the oils, of which it is largely composed, but it melts much more easily than butter. If melted, pure butter at once makes known its presence by its odor.

PRINCE off the tops of your raspberries and blackberries early, and serve the side-shoots the same way early and often to make a compact bush. If you wait to head back later the strength of the vine which has been thrown into the top removed is all wasted and you have fewer fruit spurs.

YOUNG turkeys are most efficient insecticides. A brood of these should be hatched out under a hen, and the coop of the hen set up in the garden. From this castle the young birds will make raids upon the bugs and beetles.

If you do not bank up your celery you can plant in closer rows. Try some of it this way, and when the time for blanching comes tie up each plant closely in old newspapers. It is said the stalks will bleach under this treatment in from ten to twenty days.

A MAN with a sharp-toothed rake or a hoe can go over four times as much land now in an hour as he can after the weeds are grown. The best time to kill weeds is before they are born.

A FRENCH authority states that carrots give horses new blood, which seems to restore them, and they may be justly claimed as the regenerator of wornout horses.

PURSLAIN, young crab grass, weeds and other refuse can be utilized to advantage by feeding to pigs. At this season the green food will be highly relished by them.

Dogs do not always kill sheep for the purpose of procuring food. The best fed dogs, when once they begin the practice, will continue it until they are caught in the act.

DOGS do not always kill sheep for the purpose of procuring food. The best fed dogs, when they once begin the practice, will continue it until they are caught in the act.

IN growing food for poultry it should be borne in mind that corn, wheat and oats can always be purchased, and it is best, therefore, to grow sorghum, broom corn, pop corn, millet and sunflowers for seed, which afford a variety.

FEED little chicks often—five times a day will not be too often—with hard-boiled egg, bread crumbs, boiled potatoes, little scraps of meat. Supply them with fresh water twice a day. All this is you want fine healthy birds.

THE ordinary marker makes too deep a furrow for corn, especially when the planting is early and the ground cold. If a cold rain comes on after planting, this corn put so far below the surface, will rot, or at least make only a sickly growth.

THE Massachusetts Legislature has appropriated \$2,000, to be expended, through the State Cattle Commissioner, in investigating the matter of abortion in cows, its causes, its prevention, and its effect upon the healthfulness of the milk as an article of food.

A RICH corner of your garden which would grow five or six bushels of corn will produce nearly twice as much sudowser seed. The hens relish it and fatten and grow strong on it. Who knows that the broad leaves do not purify the air of malaria? This is a wide spread belief and the plant may do for us what the eucalyptus does for the ague-stricken in lower latitudes.

CUT your flowers before they fade and the season of bloom will be prolonged. This advice must be followed strictly if you want any autumn bloom on your hybrid perpetual roses. This cutting encourages a new growth back of the old flower stems, and on this growth the fall roses appear.

THE roots of peas love a cool soil, therefore, make the late planting deep. With this precaution peas planted now will escape mildew.

DON'T neglect to pinch off the sprouts which appear on the stock where you set grafts this spring or budded last season. Throw all the vital force of the stock into the new growth.

A NOE wears on the under side at the edge. The best way to keep it sharp—and to do good work it must be sharp—is to place it flat on an anvil and, with a hammer of three or four pounds weight, draw it as thin as you please, and at the same time set the edge down to its place. It won't break it, but if it should chance to be too soft it will tend to harden it, after which a little grinding on the under side will give it a perfect edge without loss of steel or expense of files. There is nothing better than such a hoe with which to top turnips that are grown in drills; then pull with a hook. The Germans hammer their scythes instead of grinding them. So says a Connecticut man in the *Plein Journal*.

DON'T give the young chickens one or two big feeds for all day. Scatter some pickings

for them every three or four hours. This is nature's way. Follow nature, too, in not giving them sloppy and soggy food. Oat meal scalded with milk and worked pretty dry will help them till they can take wheat, soaked, softened and swelled.

THE cabbage worm is the larva of the common white butterfly. A little pyrethrum powdered, mixed with five times its bulk of plaster, and dusted in with a bellows will kill every one. Liquid insecticides do not work well, for the surface of the leaves shed water like a duck's back.

PYRETHRUM dust will kill the currant worms, too, and it is not poisonous, as is the equally effective hellebore.

THE safest way to treat the striped squash bug is to fence him out. Bottomless boxes, twelve inches square and six or eight inches deep—or old milk pans with the bottoms out—should be set about each hill and covered with a bit of mosquito netting until the leaves of the vines get too fuzzy and tough for the bugs.

A BUSHEL of apples will make from four to four and a half pounds of evaporated fruit.

ONE of the best mulching materials is salt hay, as it contains no seeds of weeds and can be stored away for use another year.

THE *Rural New Yorker* says that if you want to exhaust poor land, or waste your manure and fertilizer, manure in the hill.

DO NOT be too hasty in getting seeds into the ground, especially of string beans, lima beans, squashes, etc., as the ground should be warm for them.

MILLIONS of strawberry plants have been set out in West Tennessee this spring. Strawberry growing for Northern markets is profitable in many Southern States.

FARMERS should enjoy, above all others, the luxuries of the garden, and yet strange of say, but few farms have complete gardens and many farmers buy vegetables.

SOME of the English dairymen speak of ensilage as "pickled grass," which shows that they have some things yet to learn about the construction and filling of silos.

MR. J. J. FEELY, of Divide, Montana, writes the *Butte Miner* as follows: "I have a calf 14 months and 20 days old that had a fine calf on June 14th. Both are doing well."

HORSES at work will be gratified if they are allowed a little green grass at least once a day. If not convenient to turn them on the grass cut it and feed, with a little salt in the rack.

LARGE numbers of cattle in Western Texas are dying for want of water or grass. The drought is very severe. Myriads of caterpillars have appeared and are destroying all vegetation.

IN planting late potatoes discard all that are affected with traces of rot. They should be as sound and perfect as possible, as many diseases of the crop come from the germs planted with the seed.

IN raising sheep, besides the profit from wool, lambs and mutton, a considerable value must be allowed the droppings, as it is an advantage in favor of sheep that they benefit the soil upon which they are pastured.

SELECTIONS.

VERMONT SHEEP.

In no part of the world are merino sheep bred to such wonderful perfection as in Vermont, and in no part of Vermont have such excellent results been obtained as in Addison county, of which Middlebury is the shire town. Men come all the way from Australia attracted by the fame of these sheep, and buy them at prices which run up into thousands of dollars for a single animal. The Vermont Merino Sheep Breeders' Association is believed to be the largest live stock organization in the world. It has a membership of 1,200 from twenty-one different States, and is increasing at the rate of 200 a year. There is also the Atwood Association, a smaller body, devoted to one particular pedigree of merino.

The merino sheep belongs to the aristocracy of sheep, and is so recognized all over the world. For many hundreds of years its home has been among the mountains of Spain. The value of these animals was early recognized by the Spanish Government, and they proposed to keep the benefit exclusively in their own country. The exportation of merinos was prohibited under severe penalties, and thus the sheep remained in the mountains, the envy of the world. In 1791 the Hon. William Porter contrived to get three merinos out of Spain and brought them to Boston. They came into the possession of Andrew Craigie, of Cambridge, but he realized their value so little that he killed and ate them. At a later day he was glad to buy a single one at the price of \$1,000. In 1802 when Col. David Humphreys, Minister to Spain, was about to return to America, he was offered a present of bars of gold, after the custom of the country. He declined the gift, and on being asked what he would prefer, chose one hundred merino sheep. The law was strict, but the letter of it was evaded in this case, and after a stormy voyage, seventy were safely landed on the Humphreys farm at Derby, Conn. Other importations were made, including the Jarvis lot in 1811, until a good number were thriving in Connecticut and Rhode Island.

The Vermont merinos are in demand in Mexico, the Western and Middle States, and a market is expected for them in South America and Australia. Not that these countries do not have merinos of their own. In Australia there are flocks of between one and two million head each, and particular merinos in that country have been sold for \$17,000 apiece. Yet Vermont leads even Australia in quality, and Australians have begun to buy their breeding sheep from the Green Mountain State. Last year F. D. Barton, of Wallham, sold forty head for the sum of \$10,000, and when the recent interdiction on American sheep is removed a regular export to Australia is expected. As it is, Addison county alone sends out from \$50,000 to \$60,000 worth of merinos to various places in the course of a season. Prices asked vary according to their sex and quality of the animal, and have the wide range of from \$25 to \$5,000 each.

There is an aristocracy even among pure-blooded merinos. The Atwoods hold their heads above all others on account of pedigree. In 1813 Stephen Atwood, of Connecticut, gave one year of his work to purchasing one ewe

of the original Humphreys importation. From this is traced the family tree of the Atwood merinos in America, and to preserve this family in its purity is the object of the Atwood Association. The other merinos are equally pure-blooded, but derive their descent from various families. It is as if Atwoods had come out in the Mayflower, and the others, known as Paulars, came out in vessels which followed at various dates. The Atwoods were brought into Addison county in 1841, and in 1881 the entire flock was bought by R. J. Jones, of Cornwall, by whom they have been distributed to the various parties by whom they are now held. Mr. Jones has been forty years in the business, and is one of the best-posted men in the State on the subject, and he is the owner of a very valuable flock. This may be inferred from the fact of his selling a half interest in one merino for \$2,500. Albert Chapman, Secretary of the Vermont Breeders' Association, is also an authority and the owner of another valuable flock.

There is still another association here devoted to the merino, and that is the Vermont Shearing Association, under the auspices of which the work of to-day is being performed. This work is the shearing of some 300 of the choicest merino sheep. They are brought from various parts of the State, and housed in a large building erected for the purpose. Shearers to the number of twenty or thirty are on hand, and the work is begun without ceremony.

The object of this association is to encourage sheep husbandry by making a record which will be of value to the owners of the sheep. The weight of a fleece is but one of the tests, as the quality of wool, length of staple, etc., are also to be considered. Quality rather than quantity is the point aimed at, though when a yearling lamb will yield a clip of twenty-five pounds it is considered a superior animal. The idea of shearing at this season is to allow a good fleece to grow by the time the sheep are offered for sale in the fall. Such sheep as are not sold will be sheared again next April, and will have just a year's fleece, and thus the record will show their exact qualities. The shearing continues during three days of each year.

Men from among the Vermont sheep owners have traveled through Spain to see if they could find better merinos, but have returned with the report that no better sheep than their own can be found, and that Vermont leads the world in the quality of merinos. The flocks kept by the farmers are not large. Some have 200, but many have not more than half that number. In this way they are enabled to give every sheep proper attention, and to see that each one has the necessary care. The sheep enjoy life fully, they have the best that the land affords, in the way of feed, the year around, and their winter houses are models of warmth and comfort. The premises of L. I. Botolph, President of the Shearing Association, show an example of the attention bestowed.

Among those present to-day is Edward M. Bissell of Storchon, who returned this morning from a trip to Australia with fifty-three merinos. The lots taken out by the Australian purchasers last year were so well received that William G. Martin of New York had as

many as 225 shipped. These included sheep from the West and from New York State, and unfortunately, some were affected with disease. On their arrival in Australia they were all confiscated and destroyed. Mr. Bissell left San Francisco with his lot Jan. 24, having no knowledge of the result of Mr. Martin's venture. On arriving in Sydney his sheep were put in quarantine, where they now remain, and it will be some time before the result of the speculation can be known. The authorities have prohibited the importation of any American sheep, and so far the present trade with Australia is suspended. The scab does not exist among the Vermont sheep, and after the panic in Australia has ended they will doubtless be admitted to the island. At present they are better at home, as when Mr. Bissell left Sydney thousands of the Australian sheep were dying on account of the drought. One man lost 150,000 out of a flock of 185,000, and was so affected by his loss that he became a lunatic. On the steamer by which Mr. Bissell returned were a party of Australians, twenty in all, who will visit Vermont to inspect and probably purchase merinos for future shipment.—*Boston Globe*.

TOBACCO AS A MEDICINE.

Gen. Clingman, of North Carolina, in his long article on "The Tobacco Remedy," in the May number of the *Health and Home*, announces his belief that the use of wet tobacco as a poultice will be instrumental in saving many thousands of lives annually in the United States. He gives a long list of the marvelous cures he has witnessed beginning with one-half a century ago, when he saw a man treating inflammation in a horse's eye with tobacco juice. He tells of a signal cure of a sprain in his right ankle in 1874 by the application of wet tobacco leaves. In August, 1864, the General was shot through the leg below the knee, cutting the muscles and nerves, and making a long and painful wound. He says:

About that time several of my friends had died of the secondary fever which followed their wounds. In a few days my leg began to swell and throb with heat. The surgeons said I must keep it wrapped in wet cloths. I told them that I would keep down the inflammation by an application of tobacco. They at once asserted that an application would be ruinous. After they left I sent my servant for some tobacco, enveloped the wounded leg in it, and kept it wet with the cloths over it. The pain in an hour or two diminished, and the heat throbbing ceased, I rested more quietly than I had been doing. On the next day, when the surgeons called to see me, on looking at the wound they expressed much surprise, and said, "You may keep on the tobacco." I remember that Gen. Robert E. Lee called to see me that day, and, after looking at me a moment said, "Oh, General you are not going to die, your eye is too bright." The tobacco being a powerful nerve tonic, it always greatly excites my intellectual faculties.

Although several months passed before I could walk without crutches, yet I had no fever and little pain from the inflammation. I am satisfied that if tobacco were properly applied, no external wound would ever be

come sufficiently inflamed to cause mortification.

The General next records an instance of a cure of his right eye which had received a severe blow aimed by a driver at the head of a horse. The account of this has already been published. He gives an account of the successful application of wet tobacco leaves as a cure for the fiery red and much swollen eyes of a lawyer in Asheville, N. C. This lawyer recommended the remedy to two young ladies in North Carolina at a place where red sore eyes were epidemic. The young ladies slept with wet tobacco leaves on their eyes and were cured by morning. In several other cases he found the remedy useful for curing sore eyes.

As a remedy for sore throat the General says the application of wet tobacco leaves has been found by him to be unfailing. He instances his own experience at Aquia Creek, the case of a lady who took his advice, and cites the testimony of his brother, a physician in North Carolina, who often applied wet tobacco leaves in cases of sore throat.

Gen. Clingman also testifies to the value of tobacco leaves as a cure for erysipelas of the head, and gives details of several instances in which he found it effective. In one instance, he says, he subdued a severe erysipelas in the face, and a physician told him afterward: "No doctor could have cured you in three weeks." On one occasion he says he cured himself of a terribly painful attack of sciatica, greatly aggravated by the treatment of two physicians. He did this by applying wet tobacco leaves to his hip. He also cured bunions of long standing by applying tobacco leaves a single night. He cured a United States Senator of intolerable pain in the side and back with wet tobacco leaves, and says he has many other cures which he could relate. He warns his readers not to use manufactured tobacco, because of the deleteriousness of various drugs used in the manufacture, such as Tonqua bean, wintergreen, and poisonous substances. He cautions those who use tobacco as a remedy to apply only the pure leaf tobacco.

RUST IN WHEAT.

Rust is a parasitic plant, with neither leaves nor roots, but it steals its food from plants which have leaves and roots. Professor C. E. Bessey, of the Iowa Agricultural College, has given rust considerable attention, and we are indebted to his labors, the result of which he gave in the New York *Tribune*, for a fuller acquaintance with the habits of the plant and the manner in which it is propagated. The first stage of rust is passed on the barberry leaf, where it may be found in the spring forming yellow patches. Under an ordinary lens these patches are seen to be made up of many beautiful little cups called "cluster cups," and each cup is filled with orange-colored spores. The latter soon fall out and are blown away by the winds, some finally alighting on the leaves of wheat. Here they germinate and soon penetrate the skin of the leaf, there beginning a process of rapid growth in the soft interior tissues. In a few days, if the conditions have been favorable, masses of reddish spores are formed by the parasite just beneath the surface of the leaf, which finally

break through the skin, forming the red-rust patches so common on grain. Every red-rust spore may produce more red-rust by falling upon a leaf and germinating there. In this manner a small amount of rust in a field may, under favorable conditions (high temperature, with an abundance of moisture), give rise to enough to destroy the whole crop.

The red-rust spores appear to be incapable of living through the winter, so there are produced a little later, from the same parasite, large black patches of thick-walled spores. This is the black-rust stage, and is the last to appear. It often matures after the stalk is dead, and so appears at first sight to be much less harmful than the preceding red-rust, but these black spores are so tough that they endure the winter and germinate in large numbers the next spring. They first grow a little threadlike stalk, and on this are produced several exceedingly small spores, known as sporidia. These last, on account of their minuteness, are widely dispersed by the winds, and some, falling upon barberry leaves, germinate there, and thus start the "cluster cups." The complete round of life is as follows: 1. The "cluster cup" on the barberry. 2. The red-rust on the wheat. 3. The black-rust on the wheat. 4. The germinate of the black-rust spores, forming sporidia, which in turn produce the "cluster cups" again. It has also been discovered that the sporidia, which cannot affect old leaves, are able to germinate upon and enter into the very young leaves of the wheat, and when they do this they are capable of producing the red-rust stage, the "cluster cup" being omitted.

If wheat grains are germinating at the same time that the sporidia are being produced, the young wheat plants are liable to be inoculated with the parasite. Winter wheat germinates in the fall, while the sporidia are produced in the spring, and there is no danger to winter wheat. But with spring wheat, which germinates at the exact time the sporidia are forming, the danger is great. The reason why rust is common in places where the barberry is not grown is simply because the "cluster cup" stage is omitted, as the sporidia are able to directly inoculate the young spring wheat plant. In order to avoid the evil it should be made a special object to destroy all the straw which has black rust upon it, as the black spores have been known to produce myriads of sporidia upon straw which had been used for the winter protection of strawberries. Consequently it is also dangerous to have straw scattered around. Every precaution should be taken in communities to avoid the dissemination of rust, as its spread can be partially prevented by organized effort.

LAWNS.

The time is now here when attention to the lawn is needed, whether it be to put one already prepared in order or to make a new one. A well made and well kept lawn contributes greatly to the beauty and value of the property, whether it be in a town or in the country. In fact nothing adds greater beauty or satisfaction to a place than a well constructed and well kept lawn, and society if more indebted than it knows to the skill and value of good landscape work about a

pleasant home. There is the opportunity for the display of taste in any degree on a large lawn. But size is not required for the purpose of exercising taste and skill. Indeed quite as much invention and judgment may be exercised on a modest-sized as on a broad lawn. The creation of a permanent and beautiful lawn is the work of several seasons, unless the owner be a person of wealth who can by his expenditure through the hands of professional landscapers attain results more speedily.

The first thing to be considered in making a lawn is to get a deep rich soil. This is secured by trench spading and manuring. The surface must be made level and smooth and a mixture of grass seeds sown and properly cared for. Some people prefer to get turf from other places and put on the prepared surface of the lawn. This gives quicker results, but in too many cases introduces the roots and seeds of weeds that give trouble afterwards. Whichever way the turf is procured it must be nicely attended to and kept shorn smoothly to thicken the soil. An application of superphosphate or plume or other good fertilizers before a rain greatly assists the grass to grow strong and thick.

Trees and shrubs may be planted and should be when the lawns is made, also flower beds should be made at the same time, or rockeries, or summer houses, and whatever is to be placed in the lawn ground, and let all grow and come on together. It requires a good deal of labor to keep a lawn in proper condition, and in any pretensions to taste or style are indulged the labor must be expended, for an unkempt lawn is an eyesore to anyone, whatever may be his condition. The fact is that only people of leisure and means can or should attempt to keep lawns, and then the formation should, as a rule, be placed in the hands of a professional. After the lawn is laid out and planted any careful person can keep it in order and attend to the ornamental trees, shrubs and flowers. A well kept grass plot about a house is ornamental and within the reach of almost any house owner. The taste of children may be cultivated in the planting and caring for flowers, and any home which a child has helped to beautify and keep homelike and pleasant will always be held in dutiful remembrance. It is well to encourage a taste in all to make as beautiful lawns and surroundings about their homes as they can. A little strip of grass well kept and cared for, with a rose or other flower in it, is a sign of culture and taste in its owner. Such things may be very simple and yet be as expressive of taste as the expensive lawns and grounds of the rich.

SEEDING, PROPAGATING AND COVERING.

The most carefully seeded meadow is the most productive. Grass seed should be sown with winter grains, because they grow thinner on the ground than spring grain; the young plants are less shaded, and the growth forms with stronger roots and is better able to withstand the hot sun and dry weather. After harvesting the grain the seeding is often destroyed, because the roots of clover and timothy are so near the surface that they dry up. The ground is crusty for want of cultiva-

tion and weight of snow after the grain is sown. The remedy is simple, but rarely used. The grain should be harrowed into the ground after it has settled, and is dry enough to mellow under the harrow. Winter grain is improved by harrowing, affording a lighter soil for the spread and growth of the roots, covering the field with stronger growth, consequently increasing the yield. This process insures the certainty of grass-seeding; as seed is expensive farmers cannot afford its loss, or "trust to luck." Two crops cannot grow in the same place simultaneously. Filling the ground with all it can support of spring grain and sowing grass-seed at the same time, expecting to produce a fine meadow after the grain, results in a feeble product, and after harvesting the grain the weak plants shrivel and die. Spring grain must be sown thinner when sown with grass—then what is lost in grain is gained in thickness of the clover or grass crop. Thinely sown grain generally produces heavier, larger heads and more stems, consequently the crop is not lessened. Grass is as important to farmers as grain and should not be sacrificed for the chances of the latter. It should be made the primary crop, for the soil is renewed by it while it is exhausted by grain.

Surface manuring and thorough tillage are absolutely necessary—the more mellow the land the surer and better the crop. The seed should be sown after the grain is harrowed in and levelled by a roller, which smooths and settles the surface, insuring quicker germination. When winter grain is harrowed the teeth do not penetrate sufficiently to cover too deeply the grass seed. More care in this preliminary work will save the loss of seed and secure better crops. Dragging brush over a stumpy or rough field is a good method for covering grass-seed. Four quarts of timothy is sufficient to seed an acre of land prepared in this way; five quarts of clover upon same conditions. Double these quantities are sown because farmers expect losses that occur by careless preparation. Better expend in careful tillage the cost of seed wasted, and reap the benefit, than be burdened with a poor crop and impoverished ground.

MAKE THE KITCHEN PLEASANT

In most country homes, the kitchen is the most important room of the house, where more than anywhere else the family gathers, and the most time is spent by the house-keeper. First of all, let it be arranged as convenient as possible for work done there, and to save steps. Next let it be pleasant and homelike. Even if the family do not frequent it, it ought to be cheerful and bright for the sake of those who pass their chief time there. A picture on the wall will rest a weary eye, and be educating to those busy at work. Too often the kitchen is a cheerless place, associated only with hard, tread-mill work; no brightness on the walls, no easy chair inviting rest in its broad arms at spare moments; no paper to read in the little "between walls." Keep its walls sweet and clean with white-wash. I do not like paper on kitchen walls. If white is objected to, get abastine for tinting them any color desired. A buff tone makes the room bright and sunny. Have the lower part darker, if not

finished in wood, which is always preferable for many reasons. Beautify the windows in summer by training vines about them outside, and in winter with simple pretty lambr-quins. If you want the room to have a shut-in cosy look at night, use Holland shades, to be drawn up or down as required. The kitchen cannot be too light. Hang pretty pictures on the walls. They need not be expensive; really good ones can be cut from the illustrated papers of the day. The father or sons can frame them cheaply. Have a lounge, and a rocker with soft cushion, a broad back, and wide, comfortable arms. A hanging lamp, that can be lowered or raised at pleasure, is a convenience for any room, the kitchen included. With everything clean and neat, as every housekeeper taking pride in her work will be sure to desire it, she will not be ashamed to receive unexpected visitors there.

RECUPERATING THE SOIL.

Sir John Bennet Lawes has written a chapter for the new edition of Harris' "Talks on Manure, and Restoring Fertility to the soil," a subject that interests all our farmers who do not cultivate a virgin soil. It is a most valuable contribution, shows how science may be applied with a view to dollars and cents. A relative of Mr. Lawes, having several thousand acres of exceedingly poor and worn out land, consulted him as to the best method of treating it. The growth of crops with the aid of artificial manure is discussed, and it is clearly shown why this would not be profitable on such poor land. The plan decided upon was to make the production of meat the basis of renovation; to stop all tillage and endeavor to get the soil into pasturage by giving it the plant food to enable it to grow good grasses. A flock of sheep was to be allowed to run over the land during the day and to be felled there every night and fed one pound each of cottontsack cake. The use of sheep in renovating land is not new to our farmers, and has often been advocated in these pages, but the practice has rarely been presented in so systematic a manner. Sheep in flocks of 100, inclosed by movable fences on hurdles, upon a space 20 by 25 yards, and the folds moved daily, would in 10 days cover an acre each, and the manure of 1,000 pounds of the cake would be well distributed upon this amount of land. This quantity of manure contains 77 pounds of nitrogen, 68 pounds of phosphate of lime and 82 pounds of potash. These fertilizers cannot be purchased in any artificial manure at so cheap a rate, since the increase in the weight of the sheep fed in this manner goes far to offset their original cost in the cottontsack cake.

BACKHANDED PEOPLE.

We shake hands as a salutation; a Chinaman shakes hands with himself. He stands at a distance, and clasping both hands together he shakes them up and down at you. We uncover the head as a mark of respect; they keep their heads covered, but take off their shoes for politeness. We shake the face; they shake the head and eyebrows. We cut our fingernails; they consider it aristocratic to have nails from three to five inches long, which they are obliged to protect in silver

cases. The Chinaman's waistcoat is outside his coat, and his drawers outside his trousers. We blacken our shoes; he whitens them. We have soup as a first course at dinner, and dessert at last. They have dessert at first and soup at last. We want our wines ice cold; the Chinese drink theirs scalding hot. We bury in the earth; they on the surface. With us black clothing is a badge of mourning, with them white garments indicate the loss of friends. In that land of opposites it is the old men who fly kites, walk on stilts, and play the shuttlecock, and to keep up their odd ways of doing things, they play the latter with their feet instead of their hands. In China women do men's work, and men are the milliners, dress-makers, and washerwomen. With us the right hand is the place of honor; with them it is left hand. In dating letters we place the year last; they write the year first. They always speak of the mariner's compass (their own invention) as pointing to the south. We pay our physicians when we are sick; they while they are well, but as soon as they get sick the pay stops. Here men kill their enemies; a Chinaman gets revenge by killing himself. We use a soft pillow; they a block of wood. They lanch ships sidewise, ring bells from the outside, and actually turn their screws in the opposite direction from ours.—*Rev. Seth Brown in the Christian Advocate.*

A TREE PEST.

Michael G. Groff, of Ephrata, laid on our table this morning a small branch of a silver maple tree, which was literally covered with bark-lice, a little pest in shape like a turtle, and of a white and brown color. Scientists give it the name of "Pulvinaria innumabilis." It infests principally maple and linden trees and grape vines. Dr. S. S. Rathvon was shown the tree branch brought from Ephrata, and has the following to say on the subject: "These bugs were first described by me in the *Pennsylvanian Farm Journal*, in 1854. Present in moderate numbers last season, they have largely increased this season. If the rapid increase continues for a year or two longer they will very much enervate the trees, if, indeed, they do not kill them ultimately. They were quite as numerous in 1854 as now, but in two or three years thereafter disappeared, and when, ten years ago, I was requested to send specimens to an entomologist who was studying them, I could find none in Lancaster. Between now and the first of July the young will be hatched, and dispersed over the trees. A good drenching of an alkaline liquid, (a tobacco decoction) or even a heavy shower of rain, at that time, will destroy millions of them. The 'scales' on the branches are all gravid females impervious to fluids, but after they secrete the cotton masses in which the eggs, to the number of from three to five hundred, are deposited, they die. They ultimately fall from the trees. Although they are then powerless to further harm, they bequeath the possibilities of an immense posterity. People should have looked to their trees before the leafing season, and rubbed them off with a stiff hand-brush. The fact is, that people must regard closely the existence of insects if they desire freedom from their ravages."—*Era.*

RAG CARPET.

I shall have to make a new carpet this spring; that means lots of tedious work and nearly as much expense as hemp or wool carpet ready made. But I have the rags accumulated during two years (the worn-out garments of a large family), and, then, mother sent me a lot last fall. I have not myself much time for cutting and sewing, so a neighbor offered to cut and sew for five cents a pound. I expect my carpet will cost at least twenty-five cents a yard when finished. But I expect it to wear about three times as long as a store carpet costing twice that price. I shall get coarse Pittsburg chains of good color—red and yellow, I think—as those colors are least likely to be made tender in coloring. I will ask the weaver to warp it one or two threads of each alternating. My filling will be striped. I don't think it pays to color much, and it is not necessary, if one is a little careful when purchasing new callicoes to get good colors. The present style of indigo-blue calico makes nice carpet rags when woven. White rags I color silver, drab or purple as follows: For five pounds of goods allow one teaspoonful each of alum and logwood. Boil well together, then dip the goods one hour. If not dark enough, add alum and logwood in equal parts. I made a carpet for my stairs two years ago. As my way of having stair-carpet woven was new in this neighborhood, it may be new to some of the *Rural* ladies. It was as follows: I selected the brightest rags. The chain was brown, and some of the chain was woven in every half yard, for hemming. The stripe consisted of center, two-thirds yellow; each side ten threads black and white check half an inch square (plain drab would be as pretty), then three shades red, three threads each, commencing with the darkest; two threads pink; three shades green; three threads each; two threads yellow; three shades blue, three threads each; ten threads drab; two inches of binding chain. Each stripe was about half a yard long. Cut in the middle of the binding chains, sew selvages together, hem edges, and the stair-carpet is complete, and we like it better than the old way of weaving half a yard wide.—*Rural New Yorker*.

A THRUSH WHIPS THREE SPARROWS.

In front of Maggie Mitchell's cottage, in Park avenue, near Elberon, a robin, plumed and large, was enjoying a solitary feast recently in the middle of the road, when a pugnacious sparrow alighted alongside of him. The sparrow chattered and flapped his wings as if to invite the robin to leave. The robin evincing no disposition to retire, the sparrow forthwith proceeded to perch upon the robin's spinal column. The contest was brief and bloodless. The robin came to the conclusion that that was no place for him.

Hardly had the victorious sparrow turned to taste the sweets of his triumph when there was a sharp whirr, and a thrush darted through the air, swooped down upon the sparrow like an avenging angel, and the feathers began to fly. The sparrow chattered as if calling for assistance, but kept on fighting like a Turk. The thrush made no noise. For a minute the fight was maintained with

great obstinacy and with doubtful results. The sparrow, in point of size, was over-matched, but in agility he was the superior.

The birds rolled in the dust, pecking and clawing at each other. The sparrow at last gave indication of weariness, but when two others of his species clattered up, like reserve fire engines after a third alarm, his courage revived.

But now the thrush resorted to strategy. He darted away, thus separating his antagonists. He then spread his wings, and like a flash of lightning, dashed into the nearest sparrow, stretching him out in the dust. The other assistant sparrow displayed no longer any enthusiasm to continue the contest. The sparrow that first got into the fight, seeing one of his comrades prostrate and himself deserted, flew up into a tree, and gave vent to his feelings in chatterings.

The thrush, finding himself the sole survivor of the fight, helped himself to the repast discovered by poor robin, and looked unconcernedly as his stunned and prostrate foe gathered himself together and flew away. While the thrush was in the road not a sparrow interfered with him, although there were ten or twenty in the vicinity, watching his movements.

HOW TO MAKE SHAD SOUP.

Choose a large roe shad, and have it carefully scaled and washed, but not split; lay it on the side, on a board, and cut through the skin and flesh, from the middle of the head down to the middle of the side of the tail, in a straight line; make this cut with a sharp knife, having a thin blade; then cut through the skin and flesh just behind the gills, from the back of the head to the front; next cut the flesh from the bones, beginning at the head, using the point of the knife, and pressing the blade flat against the large bone, in order to avoid mangling the piece of flesh which is cut off; each side of the flesh yields two good-sized pieces, those from the back being the largest; when all four pieces are cut off, lay them, skin down, on the table, and remove the skin; do this by grasping the smallest end of each piece firmly with the left hand, and cutting down through the flesh to the skin; then gradually turn the knife-blade flat, holding the back toward the left hand, and, pressing it flat against the skin, cut the flesh away from it. After the skin has been removed, cut the flesh off the shad in pieces about three inches square, and prepare them for the table. Next carefully remove the roe from the fish, without breaking it, and lay it in cold salted water until it is required.

After the roe is put aside clean the carcass of the shad and wash it in cold water; then cut it in two or three pieces, put it into a saucepan together with the skin and fins; add to it two quarts of cold water, a small onion peeled and sliced, a level tablespoonful of salt, a small carrot and a turnip peeled and sliced, a stalk of celery or a handful of parsley and a palatable seasoning of pepper; set the saucepan over the fire and boil its contents slowly for half an hour. Meantime mix a heaping tablespoonful each of butter and flour to a smooth paste; when the soup has boiled for half an hour pour it into a fine sieve; carefully

pick out all the bones and rub the fish and vegetables through the sieve with a potato masher; put the pulp thus obtained back into the saucepan, together with the soup which has drained through the sieve and the paste of butter and flour; place the saucepan over the fire, stir its contents thoroughly, let them boil once, and then add enough milk to them to make the soup of the consistency of cream; let it boil once, season it palatably with salt and cayenne and serve hot.—*Julia Corson*.

SOIL EXHAUSTION BY VARIOUS CROPS.

A correspondent asks: "Is the popular opinion that buckwheat is an unusually exhausting crop to land correct? If so, is it because of the chemical composition of the plant?"

Farmers often speak of one crop as being very exhausting to the land, or as more exhausting than some other crops, as, for instance, timothy is regarded as more exhausting than clover, and the questions above open up a field of inquiry which is full of interest to the farmer.

The term "soil exhaustion" is often used to indicate simply the amount of material which a crop withdraws from the soil. Ordinarily, however, it has a broader significance, and is applied to the effect which one crop has upon the succeeding crop. Thus, because wheat grows better after clover than after timothy, farmers speak of timothy as more exhausting than clover, and often explain the difference by saying that timothy takes more from the soil than clover; or, in other words, the difference lies in the different chemical composition of the two plants.

There are several elements entering into the explanation of soil exhaustion as understood in farm practice, of which chemical composition is only one, and often a minor one.

The effect of the growth of any crop upon the succeeding one is determined by the following factors:

1. The chemical composition of the crop.
2. The location in the soil from which the plant draws its food.
3. The feeding power of the plant.
4. The residue which the crop leaves behind in the soil.

(1) There certainly is a difference in the relative amounts of several kinds of ingredients which different crops take from an acre of land. This is clearly seen by the following table:

Estimated Crops.	Pounds of nitrogen.	Pounds of phosph. acid.	Pounds of potash.
Timothy hay, 2 tons.	54	28	81
Clover hay, 2 tons.	79	22	74
Potatoes, 150 bush.	39	14	52
Sugar beets, 15 tons.	48	27	147
Wheat, 25 bushel, with straw	43	18	24
Oats, 40 bushel, with straw	37	16	47
Corn, 50 bushel with straw	57	25	51
Buckwheat, 30 bush, with straw	63	22	58

The continuous growing of sugar beets would remove more potash from the soil than the continuous growing of wheat. This fact has made itself felt in practice.

On the other hand, timothy has the reputation of being much more exhausting than clover, a fact not accounted for by the figures

in the 'ab'. Buckwheat removes not more than corn, yet, probably, has the reputation of being more exhausting. The composition of the crop has an influence on the degree of exhaustion, but fails to explain the whole difference observed.

(2) A plant that feeds from near the surface will, undoubtedly, produce an effect on the after fertility of the soil different from that of a plant feeding from a considerable depth, especially if the crop which is to follow is a surface feeder. A plant which draws food from the lower layers of the soil and stores part of the material thus obtained in large roots, which afterward decay near the surface, is a much better preparation for a succeeding wheat crop than a plant feeding from near the surface. This fact, probably, explains part of the difference between the effect of timothy and that of clover.

(3) It is well known that some crops can be grown easily and profitably on land that will fail to sustain some other crop. Buckwheat is a plant that can get its living in a very poor soil. Why? Because its feeding power is great. It is able to appropriate material that is not available to wheat or barley. Oats can also grow to a full crop where wheat cannot. Barley resembles wheat more nearly in its feeding power. Now when wheat, for instance, follows a crop that is a real scavenger that is able to grasp the last remnants of material which is at all available, it has a hard chance. Oats are said to be exhausting, though this crop takes very little more from the soil than wheat. Has not this crop, as well as buckwheat, obtained this reputation for being exhausting simply because it is able, by its great feeding power, to reduce the fertility of a somewhat worn-out soil to a still lower point, or to a point where other grain crops of less feeding power cannot flourish.

(4) The roots and stubble which a crop leaves behind decompose and aid in the growth of the subsequent crop. The quantity and composition of this residue determine the extent to which it can furnish plant food. The roots and stubble from an acre of clover are much more in quantity than the roots and stubble from timothy, and are also much richer in the important ingredients of plant food. Wheat succeeds better in a clover than in a timothy sod, not because the timothy has removed more from the soil in the grass than was cut, but because it leaves a smaller and less efficient manurial residue. It is more correct to say of timothy that it makes poorer preparation for a succeeding crop than clover does, than it is to say that it is more exhausting, because it takes more out of the soil.—*Prof. W. H. Jordan, State College, Pa.*

RAVAGES OF THE CLOVER WORM.

Secretary Edge, of the State Board of Agriculture, contributes to the *Harrisburg Late-publisher* the following account of a worm, said to be injuring the clover heads:

It is likely the clover seed maggot (*Cecidomya leguminicola*, of Lünter). It produces two and in favorable seasons three broods each season. The first perfect insects are usually seen about the middle of May, but the time of their appearance will vary with the season, so that no exact date can be given. Soon after their appearance the female deposits her eggs near the

base of the undeveloped florets. The eggs are usually laid one at a time, but are often to be found in clumps of from five to fifty in a single clover head. In due time these eggs hatch and the larvae may be found within the flowers even before the head is fairly open. At the proper time for transformation the larvae leave the head and fall to the ground, where they soon spin a cocoon and go into a pupa state, from which they emerge as perfect flies ready to go through the same course in the propagation of their species. A sufficient number of the last broods survive in order to damage the crop before harvest. The second crop is the one that usually does the most damage to the second or seed crop of clover. In accordance with nature's invariable rule, we find this insect followed by one or more parasitic enemies, whose special duty it seems to be to keep the clover midge in check and prevent its too rapid multiplication. Owing to the peculiarities of seasons and sections, we find that parasites are much less numerous some seasons than others, and as a consequence we find that the worm in the absence of its enemy flourishes and does much more than the average amount of damage. The fact that we find it to be unusually numerous this season does not necessarily prove that it will continue to be so. Next season the parasite may flourish to an unusual extent and the worm may do so little damage as to pass unnoticed as in the past.

As a case with which to illustrate our meaning we may take the Colorado beetle or potato bug when first it was (like all other pests) far in advance of its parasitic enemies. Within the past two years these parasites have passed eastward over the same ground, and having overtaken the Colorado beetle have attacked it as they did in its native home, and when these parasites exist in their average numbers the beetle will do but little damage, but when from some unknown cause (as the present season) the parasite is only to be found in limited numbers, the potato patches will suffer more than the average amount of damage.

VARIETIES OF FOOD FOR STOCK.

The majority of farmers are not familiar with the terms now used to classify the different qualities of food for stock, for they do not take kindly to such expressions as "albuminoids," "carbo-hydrates," etc. Yet, after all, the modes of expression are simple, and embody nearly all the constituent elements that enter into foods grown upon the farm for stock feeding. Some foods are fat-producing, such as corn, while others promote the development of muscle, bone and nerves, such as clover. All foods are classified under appropriate heads, each ranking in proportion to its nitrogen, carbon and mineral ash. Thus in order to arrange together those foods that are nitrogenous or muscle-producing, the term "albuminoids" is employed, because the nitrogen is nearly always in combination in the shape of albumen. The "carbo-hydrates," or heat-producing substances, are those rich in starch and sugar, and as starch and sugar both contain a large proportion of carbon, and also large quantities of oxygen and hydrogen (water), the term applied illustrates the value of the food as well as its composition. The base of all the nitrogenous foods is protein.

When we know that certain foods contain fibrin, gelatin, albumen, or casein, which are found in all animal and vegetable organisms, the fact that nitrogen is present is made plain, because that element is necessary in such substances; and when we understand that foods contain starch, gum, sugar and oils it is apparent that they must, of necessity, contain carbon.

In feeding to animals the farmer, by his knowledge of the difference between flesh-forming foods and those that form fat, is enabled to so combine the different foods as to provide for all their wants. Knowing that the "albuminoids," or nitrogenous foods, produce muscle (lean meat) and milk, in order to allow for heat and fat he must balance the foods for the purpose of avoiding too much of the one kind and not enough of the other. On an average the proportion of nitrogenous food to the carbonaceous is as one to six; or rather he should add six times as much of the carbonaceous as he does of the nitrogenous. The conditions, however, affect the proportions; for if an animal is highly exercised, as is the case with working horses, the nitrogen may be increased and the carbon diminished; but, if the weather is very cold, the proportion of carbonaceous matter, on the contrary, should be increased. By a knowledge of the composition of different foods the farmer who feeds for milk will regulate the material allowed to his animals according to its *quality*, and not *quantity*, as is frequently the case. In fattening his animals he will use the fat-forming foods, allowing only so much nitrogenous matter as may be necessary for the existence of the animal.

It is also economical to feed only as much as may be required. If too much carbonaceous material be fed to an animal the excess will be a loss, for the reason that the animal will assimilate and appropriate only the actual amount necessary for the purposes required by the system; and even when the farmer feeds liberally of carbonaceous material he will starve his animals if they do not receive nitrogenous food. Hence we often notice that on some farms where the stock is liberally provided with certain kinds of food that the animals are not thrifty, the young ones do not seem to grow, and the farmer is annoyed at the unsatisfactory results of what he supposes is good management, when the cause is a lack of perhaps only a single element, which, in connection with a less quantity of the kind of food given, would produce a radical change.

It is important then, in order to derive the best results from feeding animals, that the farmer thoroughly understands the quality of the material used. Its feeding value depends upon the proportion of those elements best adapted to the purpose in view, and unless a perfect knowledge of the composition of feeding stuffs is gained by the farmer he will feed at a loss and derive but little benefit from his stock.

CULTURE OF ROOTS.

We have frequently remarked in answer to correspondents with reference to feeding animals, "feed roots if you have them." We have felt the necessity of adding, "if you have them," for we know to what a large extent the culture of roots is neglected. In-

deed, in the vast majority of cases we feel that it is useless to make the recommendation for us are very sure that the farmer has no roots. It is a neglect which should not be so prevalent. The demand in stock feeding today is more for roots than any other one thing. Almost every farm has all that it needs of other kinds of food; but while the flesh-forming foods contain more moisture than the fat-forming, and therefore are more like roots in character, they fall far short. There is nothing to take the place of roots except ensilage, and we are not quite ready to believe that even that can. At all events ensilage costs the most, and if we allow it all the advantages over roots that its warmest admirer would claim, the difference in the cost would still, we think, make roots preferable. Why cannot we inaugurate a reform in this matter, and those of us who have never given attention to root crops begin now to do so? The mangel wurtzel is not difficult of cultivation, and yields enormously, though there are those who believe that the sugar beet is most desirable. However, mangels are good enough. It would be well if we grew root crops just as we grow other crops, with the object of raising the largest quantity that could be produced consistent with quality. That is the way to grow anything. It does not pay to grow half a crop. If a thing is worth cultivating at all, it is worth cultivating well. But it is better to grow a half crop of roots than none. It is a very careful operation to cultivate roots upon badly prepared or poor land, for it costs just as much to grow an acre of roots on poor land as it does upon rich, and it costs no more to grow them on land that is in proper condition than it does on land that is lumpy, trashy, etc. If the planting is properly done in rows, and the plants are made to stand in line in the row, the cultivation may be done by horse power, and thus save the greatest expense of cultivating roots—hand cultivation. Unless this is done the land should be made scrupulously clean of weeds before planting, for every weed adds to the expense unless it is permitted to grow unmolested, and it will add to the expense then in the shape of a diminished crop. When there is a very large acreage, large gang implements are used by which two or three rows are cultivated at a time. It is better in root cultivation to plow in the fall, and to re-plant in the spring. Then level and thoroughly pulverize, and the soil is ready, so far as the mechanical work is concerned.—*Western Rural.*

ON HORSEBACK.

There seems to be some diversity of opinion as to the practicability of making a combined saddle and harness horse. Many of your readers may be astonished when I tell them that nearly nine-tenths of the horses in the Southern states are accomplished in both directions. The colored people of that district are fond of horseback riding, especially after the moon goes down. These same colored citizens long since learned how to force a young horse into the most comfortable saddle gait, and any one following their instructions will be amazed at the ease with which the most awkward colt can be made to adopt an easy gait. If the horse is clumsy

and stupid put a severe curb bit on him, and mount with an aggravating pair of spurs. Urge him forward into a lively trot, if that is his natural gait. Then rein up sharply with the curb, set the spurs into his flank, and he will strike a good many distinct and previously unknown gaits in the first hundred yards. When he drops to the movement you like hold him to it with a steady hand, and, when he leaves it, keep starting and stopping him until he finds it again. Such harsh treatment is needed only with stubborn and stupid colts. A horse of ordinary intelligence and activity will need but a few lessons to take the saddle gait, known familiarly as the rack, and, indeed, almost any of the fancy gaits, and when once the motion is acquired it will never be forgotten.

At our fairs in Kentucky numbers of horses are yearly shown that combine great style with rapid saddle gaits and a speed of less than three minutes to harness. A thoroughly trained horse will take any gait at the slightest intimation from his rider. A raising of the hand will send him into a canter. He will fall into a rack at a pressure on his withers, or into a trot if his rider rises in the stirrups, if in active use every day, he will take his instructions almost by intuition. A slight pressure of the knee will turn him; leaning the body forward will start him in his gait, and settling back in the saddle will bring him to a walk.

The most difficult gait to teach a horse, and the best one for him to know, is a smooth fox-trot, which is a rapid kind of walk. The slightest roughness to it, however, gives the rider a side-ache. This gait will carry a horse over more ground in a day than any other. I have myself, when riding courier in the army, made 100 miles a day for three consecutive days with the same horse at this gait.—*Blue Grass in Philadelphia Press.*

OUR LOCAL ORGANIZATIONS.

FARMERS' INSTITUTE.

[Continued.]

Wednesday Evening.

Eight o'clock was the hour set to commence the exercises. Dr. Ellwood Harvey, of Chester, Pa., and Col. Victor E. Piolette were programmed to lecture respectively on "The Horse" and "The Present and the Past as they Relate to American Farming." Unfortunately both lecturers were unable to be present.

Dr. Harvey was at his home sick. Col. Piolette arrived before the exercises were over, but being fatigued he declined to deliver his lecture, but promised to do so Thursday. A small audience was in attendance, among them being a number of citizens of Lancaster. In consequence of the absence of the two lecturers another programme was in order.

Agricultural Readjustment.

Dr. A. M. Dickey, of Bucks county, a representative of the *Doylston Intelligencer*, read an essay. He wished to speak on a subject that has been of interest to farmers of Bucks county. His subject was "Agricultural Readjustment." Bucks county is an exclusively a dairy county as Chester county. In Bucks they have as much trouble as those of Chester county with adulterated dairy goods. You in Lancaster county will need some readjustment, for dairy interests are growing here.

The revision of agricultural pursuits is not accidental, but undergoes a regular change. The practical question is not whether there is any necessity for it. Systems adopted are not off hand; they

grow. They are born of necessity. The vast strata that surround us have been gradually formed. So with the methods of agriculture. They must be shaped gradually. Old systems of warfare do not answer the present wants. In the present struggle there must be a palpable system. There must be established methods. The continued growth in new fields overthrows the old methods. The stimulant of competition will go far to bring new methods. The belief that the Eastern farmer can compete successfully with the Western farmer on equal grounds needs to be dispelled. Systems need to be simplified. There is a recognized need of a revision of old methods. Although the progress of farmers clubs, agricultural colleges, etc., is slow, it will in time blossom out in fine results. The competitive field is bold and aggressive among the people in various pursuits in different sections. The dairymen of the speaker's section, a hundred miles from New York, pay more for the transportation of their goods than do the farmers of Nebraska and Kansas for theirs to the same point. He believed that individual efforts will be lost and that in its stead will be a healthy organized effort. The dairy needs adjustment. He must raise his own stock and see that his goods are of an excellent class if he wishes to be successful. Lancaster county boasts of her \$5,000,000 tobacco crop while Bucks county is not boastful of their \$2,000,000 poultry productions. We must adjust ourselves to the new era of things that must be introduced.

H. M. Engle, of Marietta, saw no reason why nuts could not be cultivated in Lancaster county. In his opinion this culture would pay better than the cultivation of fruits. This pursuit, he was convinced from the experiments by some, would pay.

The Cow.

Willis P. Hazard, of West Chester, said the farmer must be more of a manufacturer than a farmer. On account of the sharp competition this statement he thought was substantiated. Referring to the old dash churn by which butter was made, he traced down to the present creamery the various revolutions that produced the different changes. The milk separator, he said, was on the principle the centrifugal force threw the heavy bodies to the outside, carrying along any refuse that may be in the milk. The cream being light it remains in the centre, the milk next. By a system of pipes each is put in its proper receptacle. The question of introducing the separator was discussed and important facts developed. By the use of the separator from 10 to 15 pounds can be economized out of every hundred. He recommended the separator to the consideration of the farmer. The machine can be run by steam or horse power. Imitation butter or butterine is another factor that the dairymen must consider. Laws have been passed prohibiting the production of oleomargarine. Their success he doubted. He thinks these laws will have to be repealed. One way to guard against false butter is to impose upon it a tax, the same as the sale of liquor or tobacco is regulated. Dairy products are the leading ones of Denmark. From them come some of the best experiments in that line, and the American dairymen would do well to book himself on statistics of that country. Prejudice against book knowledge is a popular prejudice. If the farmer would only think of the information that could be derived from farmers' institutes this prejudice would be eradicated. At such gatherings the experience of one is compared with that of another. The objects of these institutions are to impart information. Comparing the growing crops of Chester with those of Lancaster, he found the wheat, the grass, are all inferior to those of the first named county.

The Discussion.

On the centrifugal method of separating cream and milk, Dr. Dickey had something to say. There are 38 or 39 of the separators in Chester county. One creamery, not far from Doylston, the Saultbury Creamery, a separator was placed therein in December. At the end of three months he had 16 per cent. better results than by the old method. It

was a real one, not one for the sale of the machine. All the creameries in Bucks county he was pleased to say propose to introduce the centrifugal separator. Any man who has from 25 to 20 cows can afford to have these separators. It would pay also with a few less. He took issue with the statement that pasture in Chester county was better than Lancaster. Because in Lancaster county butter is not so good as in Chester county, shows that the pasturage in the latter section is better than in the former. In Chester county there is much pasturage that is natural, that is the soil is not enriched by the plow.

In answer to Col. Piolette, Dr. Dickey stated that milk in a fresh state produces the best results from the separators.

Cleanliness, Dr. Hazard thought, was the prime requisite for butter production. One reason that Chester surpasses Lancaster is the different kinds of water in the counties. The prices that these separators bring range from \$275 to \$550 each. The price, however, was thought to be exorbitant.

Piolette's Views.

Col. Piolette thought one of the most important industries of husbandry is cattle raising. He is in favor of the individual creamery. He thought, however, the separator in time would come into general use. The exports of butter from Bradford has fallen off much on account of the selling of oleomargarine. He believed that a man who manufactured counterfeit butter and he who manufactured counterfeit money should be dealt with alike. Everytime he comes to Lancaster county his opinion is in favor of her agricultural pursuits.

Dr. Wickersham stated that the separator had its origin in Denmark. Eggs are now being sent over to this country. Col. Piolette suggested that a duty might be placed upon those products.

The Bovine.

Alfred Sharpless, a leading farmer of Chester, next took the floor, and from a knowledge derived from a long research of records, traced the origin of the bovine. In those early days the Wall street breed did not have an existence. Whence this species sprang he could not say. He was satisfied that this animal is worthless. The cow with her milking capacities he showed in different times, as asserting that in Adam's time there were no forty quart producing cows. The history of the cow and her various species, her uses in different localities, her habits, were presented, and if not practical, was interesting.

Thursday Morning.

H. M. Engle, of Marietta, was the first speaker. He said he would speak on the subject of the best method of destroying insects. He exhibited a number of plants that are extensively grown in California, and to a limited extent in this section of the country. One gentleman has grown a great quantity of it, and feels that with proper cultivation it will be made comparatively easy of growth. It can be easily ground up, and upon having the plants sprinkled with the powder it will effectively destroy all insects.

Mr. Keist said the plant, which is named Pyrethrum, grows quite readily from the seed. It is a perennial and flowers the second year.

Mr. Sharpless, of Chester county, said farmers should be exceedingly careful as to what plants they put in their soil. A plant's nature should be well known before it is planted, for some of them are so noxious that if once planted they will spread all over the farm.

Dr. A. M. Dickey said the plant looked suspicious to a person coming from Bucks county and was afraid it would become noxious. Farmers should go slow in introducing it, and should carefully study its habits before planting.

Dr. Wickersham, on behalf of Dr. S. T. Davis, extended an invitation to the members of the Institute to visit the carp pond a short distance from town.

Mrs. Stubs asked what remedy should be applied to gooseberry and currant bushes to destroy the worms. She had applied the Pyrethrum, or Prussian insect powder, and carbolic acid, but the worms continued to eat the plants.

Mr. Engle said the best method known was to take white hellebore, tie a quantity of it in a piece of coarse-wetted muslin, which should be dusted on the bushes. Care should be observed in using it, however, as the hellebore is poisonous in a measure.

Mr. Dickey had used the hellebore and found it to be not in the least degree dangerous.

Calvin Cooper recommended the application of a strong decoction of tobacco and thought it would prove very effective in destroying the worms.

Dr. Wickersham gave a conversation he had with Mr. Griest, of the *Inquirer*, in which that gentleman also recommended the application of a strong decoction of tobacco.

"Commercial Fertilizers."

Prof. W. H. Jordan, of the State Agricultural College, was introduced and spoke on the above subject, a subject which he said touched very closely the farmer's pocket, and when you touch a farmer's pocket you touch his heart. Fertilizers he said, were of two general classes—fertilizers that are bought and sold, and farm manure. There is a class of so-called fertilizers, being indirect in their action. Among these are plaster, mud and lime, which were used not because the plant needs either of them, but because of the effect which they have on the soil in making available the material the soil already has. To depend upon lime in order to keep up the fertility of the land is a ruinous policy. Liming should be applied with caution, for it is not a true fertilizer. Plaster adds two of the ingredients that plants use, but it does not add any of those that the plant is most in need of. Marl is of the same nature, but it is a fertilizer to a much greater extent than lime or plaster.

True fertilizers include certain kinds of commercial fertilizers and farm manure. The Professor then described the various kinds of commercial fertilizers, among which he mentioned South Carolina rock, bone black, dissolved bone, all of which contain phosphoric acid in a greater or less degree. The potash fertilizers come principally from Germany. The cheapest form of potash for the farmer to buy is the muriate of potash. There are quite a number of materials in the market that furnish nitrogen, which the speaker enumerated. He then gave the comparative value to the farmer of the various kinds of commercial fertilizers, and gave them some valuable hints as to what they should purchase and how they should make the selection, advising them to purchase standard articles and to mix their fertilizers themselves. Barn-yard manure is only valuable in proportion to the value of the food fed the cattle, and care should be exercised in feeding in order to give the cattle those articles which contain the most valuable ingredients.

"Farmers' Wives."

M. P. Cooper read a carefully prepared essay on the above subject. No one, he said, will hesitate to acknowledge that farmers' wives are greatly overburdened. In-door help, or the great need of it, is the farmer's curse. In a business sense a better class of servan girls could be obtained by increasing their pay. The staying qualities of the average girl are very slight, and she will leave on the slightest provocation. The progressive farmer will pay great attention to the comfort of his wife, and while he may not be able to entirely relieve her of her arduous and monotonous labors, will assist her greatly by providing her with all the conveniences purchasable. A great deal of labor may be saved for the women by having the farm hands board themselves. Provide comfortable tenant houses for them to live in, increase the pay of your hands and you will not only secure better workmen but will greatly reduce the labor of your wife. The essay was full of practical suggestions and carried with it much that was of great importance to the farmers and of more importance to farmers' wives.

H. M. Engle congratulated Mr. Cooper on the able manner in which he had handled the subject assigned to him, and agreed with him in advising the abolition of house garden, the work in which almost always falls upon the women.

Thomas Baker said he had tried the erection of a tenant house on his farm, and he was so well pleased with the results that he would not do without it. He found that the tenants proved a great saving for his wife.

Col. Victor E. Piolette, who came in during the reading of the essay said in his experience he had always found the farmer to be ready to hire all the help he wanted for himself, but to hire none for his wife.

Col. Piolette,

was next introduced by Dr. Wickersham, and spoke for an hour on "The Present and the Past as They Relate to American Farming." Reference to the early settlement of this country brings prominently to view the founder of our native State, who did more than any other man to establish the republican form of government we now enjoy. After briefly reviewing the life and public character of Penn, he said the devotion of the people of Lancaster county to agricultural pursuits were apparent to the whole world. The speaker followed with a rapid glance at the early history of the State, from its settlement to the present time. When the truthful history of this country comes to be written it will be found that the sturdy Germans of Pennsylvania and the Yankees of Massachusetts all bore their part—and bore it nobly. In all America there are not better cultivated fields than the fields in Lancaster, and said that wherever the limestone underlies the soil, you will find a Dutchman on top. He did not mean the lager beer Dutchman, but the Dutchman from the Palatinate, who settled the State and made it prosperous. Prosperity and thrift require agricultural labor in the past better than it does now.

He said the farmers must resist every attempt to make them inferior. They should unite to elevate themselves socially and politically. Col. Piolette's speech abounded with much that was valuable, and injustice would be done the really fine production of the Colonel by a brief and necessarily imperfect abstract. It was full of wit and humor, and his strong language against lawyers was received with great laughter and applause.

Thursday Afternoon.

Previous to the commencement of the regular exercises a brief discussion was had on the question of whether it was cheaper for the farmer to board his employees, or have them board themselves. A variety of opinions was elicited, but the general impression appeared to be in favor of the farmer boarding his hands himself.

"Farmers' Holidays."

This was the subject of an essay delivered by Thomas Baker, of Coleman township. Evered one, no matter in what profession he may be, looks forward eagerly to a relief from the cares and anxieties of business. Even farmers look forward with great pleasure to the few opportunities afforded them for the enjoyment of a few days relaxation. Diverging from the subject of his essay, Mr. Baker then alluded briefly to the rotation of crops and the value of fertilization.

Governor R. E. Pattison.

In introducing Gov. Pattison, (who was received with applause, the audience standing,) Dr. Wickersham said Pennsylvania had had many Governors who were friends of agriculture, but she had never had one who had done so much for agriculture as the distinguished gentleman whom he now had the honor of introducing to an audience of Lancaster county farmers.

Graciously acknowledging his warm reception, Gov. Pattison said he had come to the Institute more as a listener than a doer. He took a great interest in the agricultural interests of Pennsylvania, because he finds that it is one of her most important industries. From time immemorial the agricultural interests has been one of no small importance, but he found that the farmers were the last ones to organize for the purpose of protecting their interests. Tradesmen, lawyers and merchants have all combined for mutual protection, but it is only recently

that farmers have organized. He was happy to say that they are at last organizing, and said that the Institute now holding would have a tendency to cause others to be established in other portions of the State.

A very early attempt had been made to organize an agricultural society in Lancaster county, but it proved unsuccessful. In 1825 another and more successful attempt was made, from which time to the present the garden of Pennsylvania—made so by the industry of the Scotch-Irish and Germans—has taken the lead in agriculture. If in the early days it was deemed essential for the farmers to organize, how much more is it deserving of consideration now, with our 9,000 farms, with our 480,000 acres of land, as assessed at \$69,000,000, and yielding annually \$9,000,000? Is not this of sufficient importance to demand our attention?

This is not a manufacturing State, but an agricultural State—the agricultural wealth representing much more than that represented by the combined wealth of all other industries. For this reason farmers should organize for the protection of their interests.

Governor Pattison, after alluding to the vast improvement that had been made in the interest of farmers, turned his attention to the subject of forestry, saying that there was no pursuit that could be made more profitable—\$700,000,000 representing its value in the United States alone. This statement he verified by statistics evidently gleaned by him with great care. These statistics show that we are falling behind in the production of timber. A railroad, he said, that it takes thirty years to grow, will rot in seven years, and this fact alone shows the necessity of replanting our forests. The Mexican Government offers great premiums for the continuance of its timber—how much more important is it that we should protect the forests that are to protect our children. The speaker urged all to take the subject of foresting to their hearts and give it their daily thought, and said the State looks to Lancaster county to give her an example in protecting her timber lands. In conclusion, the governor thanked his audience for the attention given to his remarks and congratulated all upon the success that has attended the first Farmers' Institute ever held in Pennsylvania.

Man's Foster-Mother—The Cow.

Willis P. Hazard, Esq., of West Chester, followed with an interesting and instructive lecture on the subject of "Cows." He started out by asserting that in dairy districts will always be found greater evidences of wealth and higher intelligence than in any other farming districts. In many neighborhoods the dairyman is rapidly becoming a commercial man, for the reason that, as he avers, the creamery is turning out butter of the best quality, and as the quality increases so does the price. Creamery men and milk producers and finding great competition in oleomargarine, simply for the reason that it has not yet been demonstrated that the latter article is injurious to health. Laws may be passed to stamp it, but who shall say any hotel or restaurant shall serve it with its stamp, or who shall say that the purchaser shall not buy it if he desires to do so.

He believed in encouraging the home market, for the reason that it is the best. It was well, however, to have a foreign market to consume the surplus, because its retention would have the effect of reducing prices. The present thoroughbred cattle, with our great barns and cleanly stables, are in great contrast with the gaunt animals that used to feed about our straw stacks. Formerly the cow that made 100 pounds of butter per annum was a rarity; now there are plenty that make 200 to 300 pounds. What we want now is to have better farms and better cows. If we can increase the amount of butter from 200 to 300 pounds per annum, we can dispense with every third cow and thus save the cost of feeding one cow.

Within a few years past the cow that gave 14 pounds of butter per week was a wonder, but now the number of those cows runs into the thousands. Such is the demand for this kind of cows that they rise rapidly in price. Take a 14 pound cow and you

get butter that brings twice as much as that produced from a 7 pound cow, while the calves of the former sell for greatly larger prices. For dairy purposes the speaker recommended three breeds—the Channel Island, the Guernseys and the Jerseys. All of these are good, but it was also important to get a good registered bull and breed from him. In selecting a cow pick out one with a good constitution, round barrel, large milk veins, large udder of proper shape, the four quarters conforming with one another, and with a rich, mellow lobe covered with silky hair.

Farmers and Public Affairs.

Jacob M. Frantz was the next speaker. He took the affirmative side of the question, "Should farmers interest themselves in public affairs?" W. H. Brossius, John C. Liville and Ephraim Hoover held the same view as did Mr. Frantz.

In closing the debate Governor Pattison said he who serves himself well serves the State best, and urged upon all farmers to take as much interest in the affairs of the State as they can with profit to themselves. There are many farmers who have noble thoughts sometimes at home, which they should put on record. Put them in the shape of questions to the State Board of Agriculture, and they would give the world the benefit of the thought that would otherwise have been lost.

Mr. H. M. Engle appealed to the farmers present to become members of the Lancaster County Agricultural Society.

Judge Livingston, who was present at the sessions of the Institute, being called upon, said he would like to make some extended remarks, but must refrain on account of a severe attack of neuritis. He would add a little to what Gov. Pattison said by advising farmers to prepare their thoughts and questions carefully and present them to their local clubs, to get the various views of the members. Then send them to the State Board of Agriculture.

In answer to a question Mr. Hazard said there was no difference between the Jersey cattle so-called and the Alderneys—they both came from the same island.

On motion a vote of thanks was tendered Dr. Wickersham for the valuable assistance rendered by him towards making the Institute a success. The doctor responded by assuring all that the meeting had been a success, even though the number in attendance was not so large. Still, as this was the first one of the kind ever held in the State he had every reason to be satisfied with the attendance on this occasion. He hoped the members would labor to make the succeeding ones still more successful, and he expected to live to see the time when the Court House would not be large enough to hold the people who would gather at a meeting of the Farmers' Institute.

LINNÆAN SOCIETY.

Linnæan met in their rooms on Saturday, June 28, 1884, at 2½ P. M., the president, Hon. J. P. Wickersham, in the chair. Minutes of previous meeting were read and approved and dues collected.

Donations to the Museum.

From Mr. George Miller, proprietor of the restaurant at No. 25 North Queen street, a very large hornet's nest, which he obtained from a friend in Earl township. The nest measures 78 inches in length and 40 inches in circumference; and is the "Hornet without Hands" of the "American Hornet"

—*Vespa maculata*. As we have a number of species of *Vespa*, but only one of them is popularly called a hornet, therefore the prefix "American" can only be properly applied to the *communis* name of this insect, especially as one species has received the name of *Americana*, which has been regarded as the American variety of the foreign species *Pulsatrix*. This latter insect is commonly called the "Yellow Hornet," on account of its yellow color alternating with dark brown or black; the *Maculata* being white or black; sometimes called the "White" or "White faced hornet." The *Americana* also builds a spherical paper nest on bushes, but it is usually much less in size than that of the white hornet.

This yellow hornet must, however, not be confounded with the *Vespa Germanica*, commonly called "Yellow Jacket," which builds its nest under ground. The European "Hornet"—*Vespa Crabro*—differs very much in its nesting habits, as well as in its coloration, from the American hornet; sufficiently, at all events, to constitute a distinct species, and not merely a variety. For instance, the European species does not build its nest out in the open air, and suspended from a branch, but on the contrary it builds in hollow trees or other sheltered places. Although it covers its nest externally with its own manufactured paper, instead of one or two apertures of entrance and exit, it has from twelve to twenty or more. The case is the same with the foreign species *Pulsatrix*. The American insect builds a globular nest in the open air, and the foreign species does not, it builds under ground.

The cells in the nests of hornets often number thousands, and yet on the approach of winter the males die, the females disperse, and the elaborate home is abandoned never to be reoccupied. The females that survive the winter, solitary and alone, found an entirely new colony and build a new home. I have often found the female hornet late in autumn, or early in spring, occupying a cavity under an old and deeply embedded log or a stone. Sometimes also in decayed wood.

The first thought in the direction of making paper, doubtless, must have come from the example of the "hornet," but whether it did or not, the hornet may legitimately claim priority to man, and not only the hornet, but also the "wasp" (*Polistes fuscatus*, etc.) On one occasion we watched a hornet for some time, gnawing off the surface of an old rail. He was very busy in his work, but not too busy to notice our approach, for he turned around and faced us, seeming to say, "pass on, I am engaged now, and will not be interrupted," and we felt it convenient to pass on, rather than to pick a quarrel with him.

A specimen of "Pee-wee" (*Sayornis fasciata*) donated by J. M. Westhafer. Mr. W. found this bird on the pavement in East George, dead, and as it was still warm and limp, he supposed it had fallen from the tree under which it was found only a short time previously.

Birds are frequently found under similar circumstances, and it would be of some interest to know the cause of it.

Mr. Geo. Flick, taxidermist, donated a fine specimen of the "Pouter Pigeon."

S. M. Seener donated an old style fireman's hat of about 1840. This kind of one was worn by the members of the Friendship Fire Company; also a bottle containing berries and foliage of the coffee tree (*Coffea Arabica*) from the tree in Horticultural Hall, Fairmount Park, Philadelphia. Mrs. Gibbons exhibited a cluster of plants of the variety called "Wild Goose Plum." Dr. T. R. Baker donated specimens of alum rock found in digging a well at Highville, Lancaster county. This is a variety of shale containing sulphate of alumina, and is rare in our county, in fact this is the first occurrence of it. Mrs. Zell exhibited a glass globe of genuine maple sugar from the interior of New Hampshire. This is a delicious flavor and I was enjoyed by the members present, who sampled it until the glass was empty.

Donations to Library

consisted of United States Patent Gazette, Vol. 27, Nos. 10, 11, 12, 13, and Index to Vol. 26; American Journal of Meteorology, Vol. 1, No. 1, for June, 1884; Proceedings of Academy of Natural Sciences, Philadelphia, January to April, 1884, Part I; FARMER for June, 1884; *Linnæan Bulletin*, a temperance paper, for May, 1884; *Bibliothèque Entomologique*, May, 1884, from Ed. Andre, Paris; The *Slate Trade Journal*, Easton, Pa., Vol. 1, No. 1; Prospects of Publications of the Wyoming Historical and Geological Society, Williamsbarre, Pa.

Sketch of the Life of James G. Birney, by General William Birney, from the author; descriptive pamphlet of Glines' Patent Slate Roofing Paint; summer excursionist Vermont Central Railroad; University

of Pennsylvania catalogue and announcements for illumination and heat, and how to burn gas, from Lancaster Gas Light and Fuel Company; *New Era*, June 17, 1884, containing Dr. T. R. Baker's and C. A. Heintzsch's analysis of Lancaster city water; American Bookellers for June, 1884; Book Buyer for June, 1884; prospectus of early American chronicles, by H. H. Bancroft, Col.; monthly auction trade circular for June, 1884, three circulars and several communications received. On motion a vote of thanks was tendered the donors. Dr. T. R. Baker read an interesting article "Concerning Ice and the Quality of Lancaster Ice." The analysis was made by himself, and is intended as a companion paper to the one published in the *New Era* of June 17th. On motion the analysis was ordered to be printed, and was also the analysis of June 17, in BULLETIN and FARMER.

Mrs. Zell read notes on the maple sugar exhibited by herself. S. M. Sener read the following compilation, which was ordered to be printed in proceedings:

List of new plants, etc., added to County List, through Linnaean Society members, compiled by S. M. Sener, June, 1884, from records:

Lipidium caespitosa, found April 2, 1878, by C. H. Herbert, *Erythraea Rossioisima*, var. *Dulcheilla*, Sept. 1882, J. S. Stahr; *Gaultheria Parviflora*, June 1885, J. S. Stahr; *Prunella Loricata*, *Choridilla Juncosa*, *Sagittaria Pusilla*, summer 1883, W. P. King; *Hieracium Carolinianum*, summer 1883, J. S. Stahr, originally found twenty years ago by Dr. T. C. Porter.

Insects Added.

Saperda Concolor, summer 1883. S. M. Sener.

Animals Added.

Fespertilio Prinosus (hoary bat), September, 1883, Mr. Mayer; *Fespertilio Prinosus* (hoary bat), May, 1884, S. McComey.

Reptiles Added.

Calemy's *Muhlenbergii* (Muhlenberg's Turtle), November, 1881, Luther Richards.

Fishes Added.

Ambloplites rupestris, February, 1880, G. F. Rathvon; *Gronius nigrilabris* (blind cat fish), J. S. Stauffer.

The Calemy's *Muhlenbergii* was the first specimen found in forty years, and the hoary bats are two of the three specimens ever found in the county. The cat fish is the variety supposed to originate in the underground stream under Lancaster.

Bills of \$2.50 for bulletins and \$1 for stuffing bird were ordered to be paid. Committee handed in a new set of by-laws which were read and adopted without alteration. A motion was then carried that the constitution and by-laws be transcribed and that they go into effect at once, and that all other parts of the constitution and by-laws not embraced in the new ones as adopted be declared void. Committee were discharged. Bulletin for June was on motion ordered to be printed. On motion it was then resolved to take a recess during summer months, and society adjourned until the 27th day of September, 1884, at 2 P. M.

POULTRY ASSOCIATION.

A special meeting of the Lancaster County Poultry Association was held on Monday evening, June 9, with the following members present: Messrs. Jacob B. Lichty, Charles Lippold, John E. Schum, William A. Schoenberger, Frank Humphreysville, Martin Rudy, George F. Rathvon and H. A. Schroyer, President.

The only question discussed at the meeting was the time for holding the annual poultry show. The question was fully discussed, some holding that it would be for the best interests of the society if the show was held before Christmas, while others contended that the first or second week in January was the proper time. It was finally decided to defer action on the question until Friday evening, when another special meeting will be held.

AGRICULTURE.

Pennsylvania Crops.

Secretary Edge, of the Board of Agriculture, has just received and tabulated the official crop reports of his 450 State reporters up to June 1. If present indications are taken as a guide the counties of Beaver, Elk, Franklin, Jefferson, Luzerne, Monroe, Northampton, Philadelphia, Snyder, Susquehanna and Westmoreland may be depended upon for a crop equal to that of last year, while Adams, Allegheny, Bedford, Butler, Cambria, Centre, Chester, Clarion, Clearfield, Cumberland, Delaware, Erie, Fayette, Fulton, Forest, Huntington, Indiana, Juniata, Lackawanna, Lancaster, Lawrence, Lebanon, Lehigh, Lycoming, Mercer, Mifflin, Montgomery, Montour, Northumberland, Perry, Pike, Somerset, Tioga, Union, Venango, Warren, Wayne and York will increase the coming crop over that of last year in amounts varying from 1 per cent in Adams, Cambria, Somerset and Warren to 11 per cent in Allegheny and Venango. The greatest falling off, when compared with the crop of 1883, is in Washington, where the average estimate of all the reports indicates a possible deficiency of 20 per cent. In acreage Adams, Bedford, Berks, Centre, Chester, Clinton, Fulton, Monroe, Susquehanna, Union and Westmoreland report a falling off, varying from 2 per cent in Crawford, Dauphin, Greene and Potter to 11 per cent in Luzerne. With these estimates a basis, and making no allowance for possible damage done by the recent coal snap, it is estimated that the wheat crop of 1884 will reach 223,500,000 bushels.

Western estimates place the wheat crop of our State at 25,000,000 bushels, but since the results of the local reporters have come these estimates have been reduced to a point which more nearly corresponds with that of our State Department.

Potato Seed.

A farmer planted in his garden ten rows of Irish potatoes, each row consisting of four hills. His object was to ascertain the amount of planting material requisite to reach satisfactory results. Here is the result:

First row—One eye in each hill. Product, forty pounds of well-developed potatoes.

Second row—Two eyes in each hill. Product, fifty pounds of tubers, rather mixed as to size.

Third row—Three eyes in each hill. Product, fifty-six pounds of mixed sizes, many small ones.

Fourth row—Seed end of medium potato. Product, sixty-three pounds, very few small tubers, mostly large.

Fifth row—Butt end of a medium potato. Product, fifty-one pounds; few large tubers, mostly small.

Sixth row—One small potato. Product, sixty pounds, mixed as to size, many small ones.

Seventh row—One medium-sized potato. Product, seventy-three pounds of tubers, very fine and large, few small ones.

Eighth row—One large potato. Product, one hundred and two pounds of uniformly large size.

Professor Roberts reported to the New York Farmers' Club that he had found that under the same conditions small potatoes for seed gave the poorest result, the middle part of large potatoes next, the seed end next, and the stem end the best. A whole large potato, with a single eye, was the best possible seed. More work is needed, but better crops are secured by cultivating in rows or drills rather than in hills.—*Vaughn's Manual*.

HORTICULTURE.

Preparing Ground for Grapevines.

Few plants bear as much abuse as grapevines. They will grow and not seldom bear fruit, even under most unfavorable conditions; yet, to do their best, they require care and proper food as much as a man. The extent of ground which the roots of a vine occupy varies considerably according to the degree of plant-food in the soil, and by placing the fertilizing

material near the surface the roots will rarely penetrate deeper than twelve to fifteen inches. The most available form of plant-food for grapevines is pure bone of various degrees of fineness, from whole bones to that of bone flour—the whole bone furnishing a supply of food for years. Well decomposed cow manure is the best kind of fertilizer to be used. Any other well-rotted manure will do if this is not at hand. One of the maxims of success in fruit culture may be said to be: "Never use fresh manure to incorporate in the soil for the production of the best fruit." It may be used as a mulch, provided it does not come in contact with the roots.

The ground where the vines are to be planted having been selected and marked off, if the best results are wished, spade or fork two blades deep. Throw the dirt out. Now pave the bottom with large bones, which can be purchased at any butcher shop. Incorporate into the soil at the side of the trench or hole ten pounds of coarse bone dust and from two to three wheelbarrows of the rotted manure to each vine intended to be planted, and replace the soil. In setting the vine place a thin layer—say an inch in thickness—of ordinary garden soil around each root of the vine. Of course, good results may sometimes be obtained by less thorough preparation; but with delicate varieties, and when permanent and best success is desired, it pays to take extra pains in preparing the soil.

Look at the Young Fruit Trees.

It is a good time now to go carefully over the young fruit trees that have been planted one or two more years. The nests or eggs of insects can be seen and destroyed without much trouble and at a saving of time. There are visible enemies on the bark and twigs of the trees in the form of fungi and bacteria, producing blights and other injuries. These can be successfully reached by washing the trunks and spraying the whole tops of the trees with whale oil soap suds, or with a solution of soft soap (home made), into which a little crude carbolic acid is mixed. There are small force pumps or spraying implements that may be successfully used in making these applications now and at a latter period when the fruit has set after blossoming. This promises to be a good year for fruit in our part of the country, and orchardists will find that it will pay them to take good care of the trees and protect both trees and fruit as much as possible from the insect pests.—*Bucks County Intelligencer*.

The Care of Fruit Trees.

In transplanting or handling trees, recollect that every minute of exposure to the air injures them. If a tree can not be planted at once, make a hole and bury the roots. Those who go to a near nursery and take home their own trees, should puddle them. Make a hole in the ground a foot deep and as large as needed. Have a plentiful supply of water. Pour water into the hole and stir up the soil, until a thin mud is formed. Draw the roots of the through this, until they, even the smallest, are completely covered with mud; then sprinkle dry soil over them to dry them off. This "puddling" or "grouting" of the roots, as the English call it, is useful not only for trees, but for plants of all kinds.

The Strawberry Bed.

If one would have fine strawberries he must feed the plants. It is not too late to do this even now, when the blossoms are appearing. But some soluble fertilizer should be used, and liquid manure made quite thin will double the size of the berries. A way I have taken the past few years is to dig a small basin in the cowyard at the outlet of the drain from a part of the stable where two cows are kept by themselves, (the rest of the cows have a manure cellar under them.) In this basin the rich liquid drains from the gutter in the stable, and there gathers. A pailful of this odoriferous plant food is poured into a barrelful of water and the strawberries are watered with it every evening by means of a small force-pump and hose. A liberal dressing of

Peruvian guano is given previously, and this was washed into the soil and of course adds to the effect. It was Horace Greeley who is reported to have replied to an inquiring agriculturist who asked if guano was good upon potatoes that it was a matter of taste; but, for his part, he preferred butter and pepper and salt. But guano is certainly good upon strawberries, when it has passed through the chemical laboratory of the roots and leaves and has been transformed into the delicious pulp of the fruit, although the elements are the very same as those which exist in the disagreeable fertilizer.

HOUSEHOLD RECIPES.

FRESH MACKEREL.—Clean the fish, scald a bunch of herbs and chop them fine, and put them with one ounce of butter, three tablespoonfuls of soup stock into a stewpan. Lay in the mackerel and simmer gently for ten minutes. Lift them out upon a hot dish; dredge a little flour, and add salt, cayenne, a little lemon juice and finally two tablespoonfuls of cream; let these just boil, and pour over the fish.

BOILED TORQUE.—If the torque is not hard soak it not more than three hours. Put it into a stewpan with plenty of cold water and a bunch of herbs; let it come to a boil, skin and simmer gently until tender; peel off the skin and garnish it with parsley and lemon. If to serve it cold, fasten it to a board with a fork through the root and another through the top to straighten it; when cold, glaze it and dress with touts of parsley.

DECISSÉ POTATES.—Rub one quart of hot boiled potatoes through a colander. Mix well with them one ounce of butter, a scant teaspoonful of salt, a pinch each of white pepper and grated nutmeg and the yolks of two raw eggs. Pour the potato on a plate, and with a knife form it into small oblong cakes; lay them on a buttered tin, and brush them over with beaten egg and color a golden brown in a moderate oven.

NEW POTATOES.—Wash, scrape, boil ten minutes; turn off the water, and add enough more boiling hot to cover, with a little salt. Cook a few moments, drain and set on the stove again. Add butter, salt, pepper, and a gravy made of about two tablespoonfuls of flour to a pint of milk. Or, when cooked and drained place in a skillet with hot drippings, cover and shake until nice brown.

STRAWBERRY SHORTCAKE.—To one quart of self-raising flour, in the same proportions sifted, add four tablespoonfuls of butter, and rub it thoroughly through the dry flour by hand; then add four tablespoonfuls powdered sugar, two eggs, one cup and a half of milk. Knead little as possible. Roll thin, bake in a quick oven. After baking put the fruit between the layers, sprinkling them with powdered sugar.

CHOCOLATINA ICE CREAM.—The following is the receipt and makes, as our correspondent has found out, a delicious ice cream. Take one-quarter of a pound of the chocolatina and boil it three or four minutes in half a pint of milk. Now have a quart of the richest cream, to which add the boiled chocolatina and half a pound of sugar. Stir till the sugar is dissolved, then put it into the freezer and freeze in the usual way.

ASPERGES AUX PETITS POIS.—In selecting your asparagus for the above dish, pick out that which is slender and green. Cut it in half-inch lengths as far as tender, dropping the pieces into a pan of cold water. Now put in a saucepan a small piece of butter, an onion (whole), pepper, salt and a half dozen lumps of white sugar. Lift the pieces of asparagus out of the cold water, and, without draining them, put them into the saucepan with the other ingredients and cover all closely; then set the saucepan over the fire where the contents may stew briskly for fifteen or twenty minutes, or until tender. Before serving remove the onion, and serve hot.

DELICIOUS RHUBARB JAM.—To six pounds of rhubarb add six pounds of lump sugar and six large lemons; cut the rhubarb into small pieces about the

size of a walnut; then the lemons should be sliced and the peel cut very fine. Put the fruit (taking out the pits from the lemons) all into a large bowl, then cover it with the sugar, broken small; let it stand twenty-four hours, after which boil carefully for about three quarters of an hour, taking care it does not stick to the pan, also not to stir much so as to break the pieces of rhubarb, as the beauty of it is in being whole.

STRAWBERRY JELLY.—In making this jelly judgment should be used in the selection of the berries. They should be fresh and not sandy or dirty, as they will be if picked in wet weather. Hull the fruit and place it in an enameled preserving pan on the side of a bright fire. The gentle heat will soon begin to draw the juice from it, and when this flows freely simmer it until the berries begin to shrink, taking care not to let them remain long enough upon the fire for the juice to thicken. Have ready a dry sieve which has been thoroughly cleaned and scalded, and pour the fruit into this, and, after the juice has entirely drained through, strain it through several thicknesses of muslin. After weighing it, put the juice again in the preserving pan and boil it thickly for twenty minutes, stirring it frequently. Then remove from the fire and put in the sugar (crushed white sugar is the best for the purpose), allowing for each pound of juice fourteen ounces of sugar, adding the latter gradually as fast as it is dissolved, and boil until done. To test whether it is boiled enough, place a little upon a plate or saucer; if it becomes stiff, it is done sufficiently. Then remove it from the fire, fill and cover your jelly jars, and set away for use in a dry, cool place.

SWEETBREAD SALAD.—Boil six sweetbreads thoroughly in salted water. Chop them up when cold, and add to a mayonnaise sauce made thus: Take the yolks of four fresh eggs and beat, adding drop by drop enough of the best olive oil to make the quantity of sauce you want. Add a tablespoonful each of mustard and of salt, and lemon-juice to taste. The sauce, as you continue to beat, will thicken rapidly—resting the bottom of the dish on which they thicken it sooner. Beat with a silver fork. Just before serving wash and dry your lettuce, dress it thoroughly with part of the sauce, and then pour in the centre of the lettuce the sweetbread mixed with sauce. This is delicious.

RHUBARB MOLD FOR DESSERT.—Take one quart of red rhubarb and cut it in pieces; put it in a saucepan with a lid, and let it boil until quite a pulp; melt one-half ounce of gelatine in hot water; when dissolved put it with one pound of powdered white sugar to the rhubarb, and boil for fifteen minutes; add a few drops of lemon juice; pour the rhubarb into a mold. Next day dip the mold into hot water, turn out into a glass dish, pour round it some custard made as follows: The yolks of two eggs, a tumbler of milk, four lumps of sugar; simmer till thick; add a few drops of essence of vanilla.

RHUBARB JELLY.—Take some rhubarb, wipe it with a clean wet cloth, peel it, and cut it into pieces an inch long. To each pound of rhubarb add three-fourths pound of white sugar. Put it to boil for about ten minutes, or until the juice is well drawn. Strain it into a preserving pan, let it boil quickly until it clings to the spoon, skim it and put it into jam pots or molds. The quickest way to know if it will set is to drop a little on a plate to cool.

STEWED APPLE PIE.—Stew the apples and mash them. Sweeten to taste. Stir in a teaspoonful of good butter while the apple is hot, and season as preferred. Do not put the apple into the crust until it becomes cool. Put strips of crust across the top. Sift powdered sugar over it.

APPLE CRUSTED PIE.—Peel some apples and stew until soft, and not much water left in them; then rub through a colander; beat three eggs for each pie to be baked, and put in at the rate of one cup butter and one of sugar for three pies; season with nutmeg. Less eggs and butter will make a good pie not as rich as above recipe.

LEMON CREAM PIE.—One teaspoonful powdered sugar, one tablespoonful butter, one egg, the juice and grated rind of one lemon, one teaspoonful boiling water and one tablespoonful corn starch dissolved in cold water. Stir the corn starch into the boiling water, cream the butter and sugar and pour over them the hot mixture. When quite cool add lemon and the beaten egg. Take the inner rind of the lemon and mix very small. Bake without top crust.

GOOD AND CHEAP PIE CRUST.—One quart sifted flour, one-half pound salt, two heaping teaspoonfuls Rumford Yeast Powder; mix thoroughly together with dry, and salt. Then add cold sweet milk enough to make a stiff dough, and roll out as usual. Use the "Pie Crust Glaze" on both the bottom and the joints, as per following recipe. Some prefer less of the Yeast Powder in pie crust; a trial will determine what quantity best suits your taste.

PIE CRUST GLAZE.—To prevent the juice soaking through into the crust and making it soggy, wet the crust with a beaten egg, just before you put in the pie mixture. If the top of the pie wet with the egg it gives it a beautiful brown.

PIE CRUST FOR PIES AND TARTS.—One pound flour, one-half pound butter, one-half pound lard. Cut lard and butter together; rub one third of the shortening into the flour and wet with one egg beaten with enough cold water to make the dough the same consistency of the shortening, according to the weather. Roll the remainder of the shortening into the crust, and set into a cold place until thoroughly cooled.

APPLE PIE.—Take sour apples and pare, core and slice them. Put the crust in the plate and then a layer of sliced apples, and sprinkle over them a thick layer of light brown sugar, then another layer of apples and more sugar, and so on until the dish is full. Put on a top crust and bake. Powdered sugar sifted over the top when done is liked by many.

BISCUITS.—Take one quart sifted flour loosely put in, two heaping teaspoonfuls Rumford Yeast Powder, one teaspoonful salt, sufficient sweet milk and water, or milk alone, to make a slack dough just stiff enough to handle; shape with a spoon and the floured hand.

BREAD.—Follow the above directions, adding one-half gill more water. Cover the pan, which should be deep enough to allow the bread to rise without touching the cover (a flat piece of sheet iron answers very well as a cover). When nearly done, the cover may be removed to brown the top of the loaf.

GRAHAM ROLLS.—As Graham flour should not be sifted, take one and one-half pints Graham flour, two heaping teaspoonfuls of Rumford Yeast Powder. Add one teaspoonful salt. To one pint of water add half a gill of molasses, with which wet the flour. A well-beaten egg improves these rolls. Bake like white rolls in Gem pans.

WAFFLES.—Take one quart of flour, a teaspoonful salt, a tablespoonful melted butter and milk enough to make a thick batter. Mix thoroughly. Add two well-beaten eggs, and two heaping teaspoonfuls Rumford Yeast Powder; stir well and bake at once in waffle irons.

MUFFINS.—With one pint of milk and sufficient wheat flour, make a thick batter; add a little salt, a tablespoonful melted butter, two well-beaten eggs, two heaping teaspoonfuls Rumford Yeast Powder, and bake quickly in muffin rings.

STRAWBERRY OR PEACH SHORT CAKE.—To one quart of flour add two heaping teaspoonfuls Rumford Yeast Powder, one tablespoonful white sugar and a little salt. Mix thoroughly while dry. Chop up three tablespoonfuls butter in the flour thus prepared. To one large cupful of sweet milk add one egg. Then put the whole together as quickly and with as little handling as possible. Roll into two sheets, each about half an inch thick. Bake in a well-greased pan, laying one sheet on top of the other. When done, and while yet warm, separate them and put between the two crusts a thick layer of straw-

berrie or pipe peaches sliced, well sprinkled with powdered white sugar. Cut like a pipe, and eat with sugar and cream.

RAMFORD JOHNNY CAKE.—Three teaspoonfuls white Indian meal, one teaspoonful salt, and two teaspoonfuls Ramford Yeast Powder. Mix thoroughly together while dry; then add one tablespoonful melted butter and enough sweet milk to make a slack dough. Roll out half an inch thick and bake in a shallow pan well buttered. After it begins to brown, bake it frequently with melted butter. When served, do not cut but break it.

GINGERBREAD.—Take one and one-half cups molasses, one-half cup sugar, three quarters of a tablespoonful butter, one teaspoonful ginger, one half teaspoonful cinnamon, and beat all together until the mixture grows considerable lighter, then add one cup sweet milk, mixing well. Now take two and one-half cups flour, and two heaping teaspoonfuls Ramford Yeast Powder; mix them thoroughly to get very hard and bake immediately in shallow pans.

REMEDIED YORKSHIRE TEA CAKES.—One quart sifted flour, loosely measured, mixed with two heaping teaspoonfuls Ramford Yeast Powder. Rub into it one ounce of butter, and then add one egg, well beaten, and mix the whole with enough sweet milk to make a thick batter. Bake immediately in small cake tins or gem pans. Have the tins or pans hot before filling.

CRUMFETS.—Mix together thoroughly while dry, one quart sifted flour, loosely measured, two heaping teaspoonfuls Ramford Yeast Powder, and a little salt; then add two tablespoonfuls melted butter and sweet milk enough to make a thin dough. Bake quickly in muffin rings or patty pans.

RICE MEFFINS.—One pint sifted flour, two heaping teaspoonfuls Ramford Yeast Powder, and a little salt. Thoroughly mix together; then add one cup cold boiled rice, two eggs, one tablespoonful butter and enough sweet milk to make a thick batter. Bake immediately.

POULTRY.

Breeds for Laying.

The best breeds of fowls for laying are those that suit the climate in which they are kept. It is an oft-repeated inquiry as to which breed is most suitable, by those who contemplate poultry keeping. Such inquiry can only be answered by those who have experimented with different varieties in different locations. There is no doubt that the Leghorns are equal to any other breed for egg-production, but it does not follow that they are the most profitable fowls under all circumstances. They are divided into two classes—the single and rose-combs—and there is a further subdivision, according to color. The single comb varieties of fowls are subject to frozen combs in very cold weather, but when properly managed they escape harm. The difficulty may be overcome by “dubbing” them, as is done with Games, but as the principal points of the Leghorns are given to the comb, they would therefore be disqualified from competition at the fairs and poultry shows. A frosted comb would not be very objectionable to those who only breed fowls for profit and not for exhibition, but when the comb becomes frosted the hen ceases to lay until the injured member is completely healed. As the comb may be frozen several times during the cold season, the loss of time from egg production, owing to the effect of the temperature, would be quite an important item. The double comb varieties though exposing quite a large surface to the action of cold, have their combs closer to the head.

In this noticing so small a matter as the comb, the object is to present one of the difficulties in the way of keeping a breed that never sits, but lays well. While the breed may not find favor in cold climates, that is no reason why it should not be popular in other sections. As the Leghorns have their virtues and faults, so do the other breeds of fowls. In raising

fowls for market many object to the Brahmas and Cochins on account of their slow growth, and this objection may be a strong one if the fowls are to be sent to market as chicks, as they do not feather until well advanced. If matured fowls are intended for shipment the largest carcasses, with fine appearance, may be obtained from such breeds. The Plymouth Rocks, which grow fast, and are uniform in appearance when young, also make good market fowls when grown, but, while they are excellent layers, they are liable to become excessively fat when highly fed, especially when they are confined, which is a hindrance to egg-production. This may also be an objection to the Brahmas and Cochins. The best results are derived from Plymouth Rocks when they have free range. All breeds do best with freedom, but the larger ones are more contented under restriction. It is best, therefore, in selecting a breed for laying to take into consideration its hardiness, fitness for market, time of maturity, adaptability to climate and disposition. By selecting that breed which possesses qualities adapting them to the conditions of the particular section of country, the best breed for laying as well as for other purposes will be secured.

Successive Crops of Poultry.

Where labor is too costly, says the *Co-operative Poultry* Post, or where, as in a large family, no account is made of the labor of children, it is possible to obtain a large income from a comparatively small flock of fowls. This is accomplished by raising successive crops of chickens during the season. The first crop should be out of the shell by February 1, and the last installment by June 15. We are speaking now of raising chickens for market. The first hatched will be ready for market by the first of May and the last by Thanksgiving. The old fowls should be disposed of in July, or as soon as their services as layers and mothers can be dispensed with. The successive broods should be disposed of just as soon as they will command a fair price. The earliest will be in marketable condition from eight to twelve weeks. They can never be more profitably disposed of than at that age, for as they increase in size prices decline, and so the extra food bestowed on them is actually thrown away.

By this method of promptly disposing of the chicks as they mature, the premises do not become overstocked and the soil of the runs foul, as in the case when large flocks are kept throughout the season to be sold at the holidays. By selling of the old stock in July the greatest possible profit is obtained from them. After this date they lay but few eggs, begin to moult in the fall, and perhaps lay not a single egg before winter. The extra pound or two of flesh they put on does not pay for their feed. By killing off all surplus stock by Thanksgiving the yards are cleared out and opportunity is given to feed and care well for the few that are to be kept over for next season's breeding. The extra care these few receive will induce early laying and broodiness in the spring, and these two points are essential to success. We have only outlined a method that is followed by many in the Eastern States who have been successful in making money by raising eggs and poultry for the food market. The plan will have to be modified according to locality and other circumstances.

Effects of Poultry Manure.

What is the value of poultry manure? This question is often asked. I can give you justly say the manure is worth quite as much as the food consumed by the fowls: From a flock of 22 hens last summer and 44 through the winter I have gathered 16 barrels of manure. Most of this I put on a small vegetable garden in a sandy spot from which the top soil was dug away three years ago five feet deep. The soil was very sandy and light in color. As it lay in front of the chicken-yard most of the manure has been put on this sandy spot and dug in quite deeply. The soil for a foot in depth is now as dark as a Western prairie soil, and rich, deep brown in color. A few rows of strawberries were covered with the fresh poultry manure in the winter. Neighbors

said it would kill the strawberry plants “dead as dead.” They are not dead, however, but stand up with an extraordinary growth, and to-day (April 2) I find one plant in blossom, and nearly every plant in the rows ready to burst into blossom. The effect over cow and calf manure is very great. I find this manure also to be grand for onions. For potatoes it is not good, as it encourages scab in a most remarkable degree, which is because the wire worms harbor in it so numerously. Or do the fowls pick up the wire worms and void the eggs of them undigested in the droppings, and so spread this pest? Who can tell.

LITERARY AND PERSONAL.

THE FREE LANCE.—“A Monthly Journal, devoted to the Exposure of Fraud and the Protection of the Public.” Published at 8 King street, east, by Spence & Co., Toronto, Ont., Can., at 25 cents a year in advance. Eight pages quarto, Joseph M. A. Spence, editor. May, 1884, Vol. I., No. 5; circulation over 4,000 copies. It is “down” severely on all frauds, lotteries, bogus publications, “dead-beat” advertisements, &c., and comes out pretty “flat-footed.” To obviate any monotony their might exist in exposing the multitudes of iniquities that characterize the present period it “leavens the lump” with spicy anecdote, witicism, and plain and practical selections. Doubtless it fills a “vacaney” that ought not to exist whilst fraud exists. So far as our preference is concerned, we would certainly respond affirmatively to its request to exchange.

LINNEAN BULLETIN.—From two to ten pages royal octavo, issued periodically, containing a synopsis of the proceedings of the “Linnean Scientific and Historical Society,” and occasionally such papers of scientific or historical interest as may be read, from time to time, before its meetings. About fifty copies are issued, which are gratuitously distributed among its members, and other scientific associations.

“AGRICULTURE OF PENNSYLVANIA,” for 1883, containing the annual reports of the “State Board of Agriculture,” the “State Agricultural Society,” the “State Dairymen’s Association,” the “State Horticultural Society,” and the “Pennsylvania State College,” being 452 pages royal octavo, illustrated with 33 full-page plates, and 106 figures, of which a few are beautifully colored. The volume also contains copious indices to the separate reports; charts, tabulated experimental statistics, essays, discussions and practical results. Perhaps the State Government of Pennsylvania has never had a volume containing better material and better mechanically executed. The printer’s and engraver’s arts have many a “dull day from being damned.”

THE POULTRY KEEPER.—A Journal for every one interested in making poultry pay. Vol. 1, No. 2, Chicago, Ill., May, 1884. An exceedingly neat and artistically executed demiquarto of 16 pages and splendidly illustrated. W. V. R. Powis, publisher, at 89 Randolph street. Terms, 50 cents a year in advance. A cheap publication, and yet not a single cheap-looking thing about it. P. H. Jaenbs, editor. The papers published in it are all brief, pithy, and to the purpose. Acknowledging that the “field of poultry papers” is pretty full, yet the sponsors of this journal claim that there is “room at the top,” and hence their ambition is to reach that point. There are some excellent poultry journals in the United States, but for its size and price, we have seen nothing that can successfully compete with this journal, and in its size we also include its quality.

The illustration of the **PLYMOUTH ROCK COCK** on its first page is a most magnificent specimen of the engraver’s art. It is astonishing how bold and rotund an object can be brought out from a flat surface by the more employment of white and black deftly manipulated by the gravers pencil.

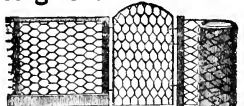
What must be regarded as a standing merit in this journal, is, that it proposes to co-operate with other journals of a high character in rooting out and suppressing all manner of fraud, and fraudulent advertising, through which *hogue* poultry men impose upon the public—a consummation most devoutly to be wished for.”



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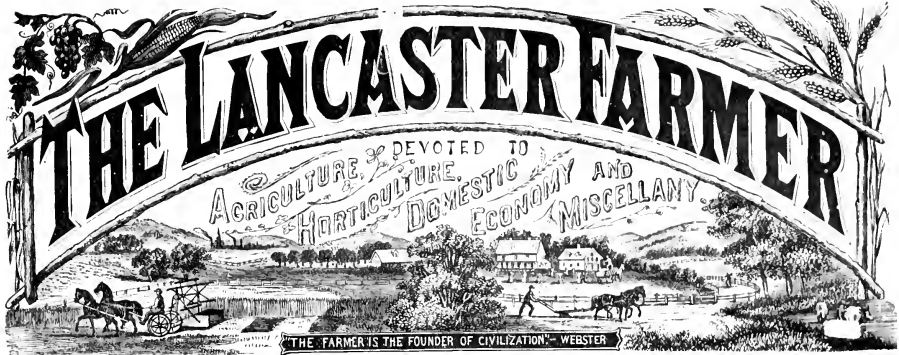
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News Express	6:25 a. m.	7:30 a. m.
Way Passenger	6:30 a. m.	8:50 a. m.
Mail Train via Mt. Joy	9:40 a. m.	10:50 a. m.
Mail No. 2 via Columbia	9:45 a. m.	11:00 a. m.
Niagara Express	9:45 a. m.	10:50 a. m.
Hanover Accommodation	9:50 a. m.	Col. 10:20 a. m.
East Line	1:05 p. m.	2:55 p. m.
Frederick Accommodation	1:45 p. m.	Col. 2:15 p. m.
Lancaster Accommodation	2:30 p. m.	3:00 p. m.
Harrisburg Accommodation	2:30 p. m.	3:00 p. m.
Columbia Accommodation	2:30 p. m.	Col. 3:00 p. m.
Harrisburg Express	7:40 p. m.	8:25 p. m.
Western Express	11:30 p. m.	1:25 a. m.

EASTWARD.
Mail Express, 12:42 a. m.
Philadelphia Express, 2:27 a. m.
Fast Line, 3:55 a. m.
Harrisburg Express, 8:10 a. m.
Columbia Accommodation, 9:00 a. m.
Seashore Express, 12:38 p. m.
Johnstown Express, 2:20 p. m.
Day Express, 3:25 p. m.
Harrisburg Accommodation, 6:47 p. m.

The Frederick Accommodation, west, commencing at Frederick, with East Line, west, at 1:45 p. m., and runs to Frederick. Hanover Accommodation, west, commencing at Lancaster with Niagara Express, east, at 9:45 a. m. will run through to Hanover daily except Sunday.

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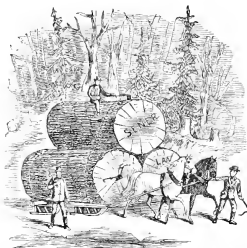
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Nov-17

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., AUGUST, 1884.

Vol. XVI. No. 8.

EDITORIAL.

AUGUST.

"And as he passed in pride unguised,
One more majestic came,
To fill the measure of my dream—
The seasons shifting train—
He bore the full-grown stalks of maize
As soldier bears a lance,
And in his wake an elfin band
In sportive glee did dance;
The splay meton and the pear
In colors rich as gold,
They offered at midsummer's shrine
In numbers all untold;
A red-robe hung in ample folds
Around his form, most robust,
His shield was blazoned with a name
That indicated August.

This eighth month of the year, according to our calendar, was the *scitibus*, or sixth month of the Romans, as well as of the Jews in their primitive reckoning. It was named August in compliment to Augustus Caesar of Rome, whose "lucky month" it was; in which occurred many of his most fortunate events. It may be interesting to state that Augustus was not a proper name, but merely a title, because he was head of the priesthood. His prior name was *Octavius*, and probably it would have been better to have given that name to this month, under the altered calendar, as that name relates to the number eight. In the reign of Diocletian, the two Emperors were each styled Augustus (that is, sacred majesty), and the two Viceroys were named Caesar. Among the notable events in the life of Augustus Caesar which associates his name with this month, was his entering on his first consulate in it.

Specifically, August is the last of the three restricted summer months, and much of the fruit has reached the zenith of its development, and occupies the remainder of the summer in maturing and ripening—much also has passed entirely out of season.

The name of this month in French is *Auguste*; in Latin *Augustus*, from *augere*, to increase; in short, the term means grand, majestic, magnificent, solemn, awful. The German is *August*, and its meaning about the same, although it is commonly pronounced short, as if one syllable, *Augst*.

Although the harvesting and planting is now pretty much over (excepting sowing of winter grain), still, until the close of this month, some varieties of turnips may be sown for early winter food for cattle. The cost of this crop is a mere trifle, and if the season is at all favorable a good return may be realized by the farmer. Buckwheat may also be sown where the climate is propitious, and it pays well. This is also the principal manuring month, when the land is being made ready for fall-plowing and sowing. But what is the use of telling the farmer what he ought to be doing on the farm in the month of August. We might almost as well presume to tell him how to do it.

During this month also the second broods

of many insects go into the ground to pupate and pass their winter hibernation. Late plowing would turn up many of them to fall a prey to insectivorous animals, or the mercy of the elements. Late plowing also affords an escape from the attack of the Hessian-fly. In connection with the subject of plowing and sowing too little importance is often attached to the quality of the seed that is sown. If you "sow the wind you will surely reap the whirlwind." Therefore, look well to the quality of the seed you sow. If you have failed to realize good seed in your own crop then go to your next next neighbor, or a reliable seed store, even if you have to pay double for it. There may be those still who consider the matter of seed of no importance, but the number, among intelligent farmers, is growing less.

MAPLE SCALE INSECT.

This insect (to which we alluded in our July number, under the terms "Bark-louse or Scale Insect," seems to have a very "wide berth" the present season, including not only eastern, middle, and western Pennsylvania, but also several other States. Elsewhere in this number of the FARMER will be found a paper on the subject from the pen of Prof. Lintner, State Entomologist of New York, which we clip from the columns of the *Pittsburg Chronicle Telegraph*, which may not only be interesting but also useful to those of our readers whose trees are suffering under the pending infestation; especially as he gives the formula of the best artificial remedies that may be applied for its extinction. Whatever it may be deemed necessary to do in the matter, should be promptly and thoroughly done.

POULTRY EXHIBITION.

We observe from the proceedings of the last meeting of our local Poultry Association, that steps are already being taken to hold another annual fair. We commend the perseverance and the "grit" of our local poultry men, and we sincerely hope they may meet with the success they so richly merit.

In the meantime we trust they will not fail to honor the County Agricultural Society, which commences its exhibition of the first of September next, with a practical recognition.

PLUMED THISTLE.

MOUNT JOY, July 18, 1884.

S. S. RATHVON, Esq.—Dear Sir: I send you herewith a stalk pulled up in Joseph Detweiler's field. This Mr. D. calls the worst weed that is seen growing in this neighborhood. It was supposed for years to be the so-called "Canada Thistle," but it is said by those who are better informed than we are that it is not the Canada Thistle. But what is it? Please examine it and send us the proper botanical name of it, and oblige yours, &c.,

Very respectfully, A. G.

Your plant is one of the common "Plumed

Thistles"—of which there are ten or more species that are found in the United States—the *Cirsium discolor*, Spreng., and is a native. The "Canada Thistle" is *Cirsium arvense*, Scop., and is more spiny and very much less in height; introduced from Europe. A few days ago I found immense quantities of the Canada Thistle growing on the banks of the Susquehanna, below York Furnace, in York county—enough to inoculate the whole State of Pennsylvania. This is all wrong; there ought be some authority to compel its removal.

If Mr. D. knows this to be "the worst weed growing in his neighborhood," then he is culpable in permitting it to go to seed; it should be cut down close to the roots and never be allowed to ripen its seed; each seed is attached to a small "parachute," and by a favorable wind the plant is enabled to scatter its pernicious seeds to an immense distance.

These thistles are difficult to eradicate, from the fact that each root fiber may produce a plant, but by persevering energy it can be conquered, if all the farmers simultaneously co-operate in its removal. The whole tribe of thistles are pernicious, and none of them ought to be tolerated. They are already beginning to scatter their seeds by means of the little parachutes referred to.

TRUMPET GALLS FOUND ON GRAPE VINES.

KIRKWOOD, July 17, 1884.

PROF. S. S. RATHVON.—Sir: Enclosed you will find a grape-leaf which drew my attention the other day, and not being able to explain the cause of those protuberances, I have referred the matter to you. You will oblige me by answering through the columns of the *New Era*.

Yours respectfully, M. S. C.

Letter and contents duly received. The thorn-like "protuberances" on the grape leaf are what are commonly called the "Trumpet-galls." They are caused by a small fly belonging to the *Cecidomyia*, or Midge family, and are nearly allied to the Hessian-fly and wheat midges.

As galls of a similar form occur on the leaves of other vegetation than the grape, this one has been christened, by way of distinction, the "Trumpet Grape Gall," and has been described and named by Baron Osten Sacken *Vitis citivola*. They are usually of a light brown or red color, from a third to half an inch in length, spur or spine-shaped, and occur from a single one to groups of three or four on the upper surface of the leaf. Occasionally, however, they occur on the lower surface of the leaf, when they are of a greenish color. If these galls are split open they will be found to be hollow, and if at the proper time a very small orange-colored maggot will be found to occupy most of them, supposed to be the larva of a gnat, belonging to the genus *Cecidomyia*. If the leaf is left on the vine the gnat may escape without being detected; and if taken off, they are certain to die through "drying out;" hence, so far as we know to

the contrary, they have not yet been identified, and specifically, and described. The field seems to be still open to discovery, and if you can succeed in breeding and identifying the gnat that causes these trumpet-galls, you will subserve science, and add a scientific "feather to your cap." We must confess we have failed in every attempt to rear them.

ABOUT HAIR-WORMS.

(*Gordius*, etc.)

MILLERSVILLE, July 3, 1884.

PROF. S. S. RATHVON.—*Dear Sir:* I take the privilege of sending you a curious worm, (if I may so call it,) that was pumped from one of our never-failing wells of this village. It was handed to me by a Mr. Henry, and my opinion asked in reference to it but had to plead ignorance. Therefore I send the specimen to you for your examination and opinion. I would like to hear what class it belongs to, and whether it is of a common occurrence. By letting a little light shine on the subject, you will greatly oblige.

Yours respectfully,

B. F. H.

PINE GROVE, Pa., July 28, 1884.

PROF. S. S. RATHVON.—*Dear Sir:* I send you with this mail, a vial in a block of wood containing a worm which was brought me by a neighbor, the worm having been in an apple.

Please inform us through the FARMER what it is.

Yours, &c.,

W. H. S.

Within about the space of one year, we have received three specimens of *Gordius* or "Hair-worms," obtained under the most diverse circumstances, and from localities remote from each other, and which constitute three different varieties, if not distinct species.

The first specimen was black in color, obtained in the northern suburbs of Lancaster city, and about eight inches in length. This was found protruding from the body of a large black beetle about two inches, and then drawn out by the hand.

The second was of an ash-brown color, between eleven and twelve inches in length, and was pumped up out of a "never-failing well" in Millersville, in this county. This now holds the distinction of being the longest and the thickest we have never seen, and may be a distinct species, as the anterior end is trilobed instead of bilobed.

The third specimen is white in color, taken out of an apple, at Pine Grove, Pa., and is about six inches in length. It seems to be conceded that the first stages of these animals are passed within the bodies of other animals, but it is not clear how they get there. Nor is it clear how they get into an apple (we have one found in the seed-cavity of an apple) nor how they get into a head of cabbage. (We also have one or two found near the centre of a compact head of cabbage.) They are said to deposit their eggs in water, or in damp or marshy places, and the eggs, or the young when first excluded, being very small, are somehow appropriated by the animals.

The generic name of these animals is said

to be derived from *Gordius*, King of Phrygia; relating to a knot in the harness of his chariot, so intricate that it baffled every effort to untie it. The oracle having declared that he who untied the knot should be the conqueror of the world, Alexander the Great, made the attempt, but fearing lest, in the event of his failure, it should be considered as a bad omen and interpose an obstacle to his future conquests, he cut it asunder with his sword, and thus either fulfilled the oracle or eluded it; just as his friends or foes chose to construe it. Hence these Hair-worms being often found tied up in a tangled knot, received the generic name *Gordius*, and the most common species the specific name *quaticus*, from being usually found in water. These animals do not all belong to the genus *Gordius* however, but to several other genera. Those we found in grasshoppers were *Filaria*, not so long nor yet so firm in texture as the gordians.

They belong to CLUVIER's second family of the Abbranchions Annelides (that is, they are destitute of bristles), which also includes the leeches, besides many other curious forms. They are usually found from six to sixteen inches in length, but it is on record that specimens have been found three feet in length. Some difference of opinion has long existed as to which end constituted the head or the tail; one class regarding the bifid or two lobed end the head, and the other class that the conical end is the head. Some naturalists have dignified these annelids by erecting them into a distinct order, named GORDIACEA, and separating them from the Filarians, and one writer describes a species eleven inches in length, that he took out of a *Curvulus violaceus*, a violet colored ground beetle, hardly an inch in length. And it is also on record that if they chance to emerge from their victims in dry weather, or in a dry locality, they allow themselves to be dried up and become hard and brittle; and yet, as soon as a shower of rain falls upon them they relax and become active as ever, and immediately start off to a suitable place to deposit their eggs. These eggs are deposited in a string, like a fine string of minute beads.

Of course the notion that these animals are "animated horse-hairs," is utterly fallacious. Their bodies are a series of very distinct articulations. The Linnean Society of Lancaster has a specimen in which the eggs are distinctly visible within the body of the adult.

CLOVER MIDGE.

We failed to develop to the mature stage any of the "clover midges" alluded to in our July number, but we accomplished something quite as satisfactory and calculated in some measure to quiet the apprehensions of the cultivators of clover. We placed about a dozen small clover heads in a glass jar, intending to add some fresh earth, which, through unremitting secular occupation we entirely forgot, until we deemed it too late. These clover-heads were infested by about thirty individuals of the larva of *Cecidomyia leguminicola*, Lint., and as many of them appeared on the outer surface of the heads we supposed them near their pupal change, for which reason we did not immediately supply them with earth. In cleaning out the jar, on the first of August,

we discovered in the bottom about a dozen shrivelled orange-colored larvae of the midge, and about as many specimens of a small species of "Chalcid-fly," from which may be inferred that the "bane and antidote" are traveling in company in Pennsylvania. This chalcid has (in some specimens) iridescent wings; white feet, with a dark spot on the femur of the anterior pair and the head (which is proportionally large), the thorax and the abdomen, a very dark burnished green, or greenish black; and about the size of *Petrognathus parvulus*, which we have bred from the pupae of *Pteris rapae*, resembling that parasite in size and color at least. We have an impression that the parasite of the "clover midge" has been named and described, but at this writing we have not immediate access to it if it has.

On the whole, we do not think that because the midge was abundant in Dauphin county the present season it will necessarily be as abundant, or more so, next season, although it may have had an injurious effect upon the quantity and quality of the present season's crop of clover seed. Time alone, however, can truly demonstrate this.

THE "KING-BIRD."

The "King-bird" or "Bee Marten (*Tyrannus Carolinensis*) in some localities also called "Tyrant Fly-catcher," is wholly, solely and unreservedly an insectivorous bird. It feeds on nothing else, and like the swallows, it only comes amongst us when we have insects for it and its young to feed upon, and it leaves us as soon as no more winged insects abound. It does not roost around among rubbish for insects, but usually occupies a perch and waits for them, taking them generally "on the wing." Prof. Thomas G. Gentry, in his "Life Histories of the Birds of Eastern Pennsylvania," enumerates and names thirty-seven distinct species of insects that have been found in the stomachs of King birds; and the caterpillars, or larvae of about twenty-five species, that they have fed to their young, before they have been able to help themselves.

Among these insects are included some of the most noxious species; some that are neutral and also some that are insect friends. This bird makes no discrimination (neither does any bird for that matter); to him an insect is an insect, and that "fills the bill," so far as he is concerned.

Nevertheless, the King-bird has his fault, and according to some people, a very grave one. He seems to have a penchant for bees, and some say for honey bees; but possibly not because it is a honey bee so much as because it is an insect. Some ornithologists have feebly defended him, alleging that he only destroys the drones, but Prof. Gentry is convinced otherwise, through personal observation. Still, this is a mere bagatelle, when we contemplate his whole character. "For its wholesale destruction of man's worst enemies, it merits his unstinted praise," is the testimony of an intelligent authority. We have deemed this much necessary at this time, in view of the ruling of one of our city alderman, in a case of shooting a King-bird, brought before him July 31st, in which a young man was heavily fined.

*The person who drew it out and presented it to us did not know the name of the beetle, but from his description we infer it was the common "lar-beetle," (*Copris curvulus*), we have taken it from the "Red-legged Grasshopper," and from HARPALEDE.

THE ENGLISH SPARROW.

It seems almost superfluous to say anything more on the subject of the "English Sparrows," in their relations to the noxious insect world; nevertheless, we now and then read a feeble paragraph, written and published in their defense by those who do not write about them or defend them rationally. The following, however, which we find in the columns of the *Western Farmer*, seems to be so nearly in harmony with our own observations and experiences, that we feel it ought to have an increased extension; and especially so far as it relates to their greedy gregarious characters, their ignoring the presence of the "Elm-leaf insects," and their devourment of seeds and grains; to say nothing about their impudent pugnacity. We never took much stock in this imported "natural insecticide," and what we *did* take, on their first introduction, was under a tacit protest, because that they could possibly be reliable devourers of insects, seemed to be at variance with the principles of their normal classification.

But, as it was deliberately brought here, and purported to be one of England's utilized domestications, whose instinctive proclivities had been entirely changed, we were quite willing to suspend our judgment for the time being and give it a chance. Last season, about the time our farmers were harvesting their grain, we noticed them frequently in flocks of from 50 to 100 feeding on wheat, or on grass-seeds, oats, etc. We did not, however, find them so excessively (as Dr. Dixwell found them) gaminivorous; but, this was because we did not subject them to the same scrutinizing and persevering tests. The best means to ultimately remove them, is to legalize their destruction, for "sparrow potpie," "sparrow on toast," or "sparrow in roast-potato," are all toothsome and appetizing dishes, which we have practically tested—let the sparrow "go."

1. We have no need, in this country, of seed-eating or vegetable-feeding birds as such. The concurrent testimony of all is that this species is such a bird to an extreme degree, destroying insects to a notable extent only while rearing its young. Dr. John Dixwell, of Boston, says: "Last season I obtained thirty-nine individual sparrows, during the height of the canker-worm pest, in the Jamaica plain district (near Boston) at an equal number of males and females. These birds had been allowed to gather any food they liked, and their houses were placed in the midst of several elms infested with worms. On dissection no insect or worm, whole or in part, could be found in their digestive tract, even with a glass, but grain, oats, seeds and gravel alone gave evidence, distinct in these cases, of a gaminivorous lie."

2. We need insect destroyers which, when natural restraints are removed, cannot become excessively abundant. The English sparrow is not one of these. With a constitution which permits it to feed upon almost anything edible, there can rarely be such a scarcity of food as will prevent an unlimited multiplication of individuals. Nesting as it does by preference, about dwellings and cities in situations usually inaccessible even to cats, we can have no bird which can have so few natural enemies as this one; that it inherits

an iron constitution is sufficiently attested by the fact that it finds it unnecessary to migrate to warmer climes on the approach of cold weather. Indeed we have no bird whose habits render the struggle for existence as slight as it must always be with the English sparrow in settled districts. This being the case, I believe it is only a question of time when the English sparrow, if permitted, to do so, will become too abundant to find ample sustenance in our cities, and will then make excursions into the adjoining country for food, as blackbirds do, if indeed they may not even take up a permanent resident about dwellings upon the farms. It appears impossible that such an advent could be for the best welfare of the country.

3. The diversity of habits among insects has led to an extensive division of labor among insect-eating animals, and each kind has acquired a peculiar fitness for certain kinds of work, which in a large degree, disqualifies it for work of other kinds. These being the facts it follows that no single bird, however abundant, should be expected to hold all injurious insects within due bounds. The concurrent testimony of those whose judgment should be reliable on this subject. (Among them Dr. Elliott Cones, Mr. J. A. Allen, of Cambridge, and Mr. Robert Ridgway), is that wherever the English sparrow becomes abundant it does, by its pugnacity or by sheer force of numbers, crowd out our native species either entirely or in part.

4. Birds which have any injurious tendencies are rendered the more injurious if they possess, in addition, the habit of moving in flocks of considerable size. The English sparrow is such a bird. It is the gregarious habit of many seed-eating birds which lends to them their chief noxious quality. Not that they would eat any less grain if they did not unite in troops, but that their injury would be more evenly distributed, causing each man to bear his share of the expenses incident to bird-life as he has received his share of the profits. Did our black birds spread out over the country at large instead of uniting in such large troops, the amount of grain which they would consume, though just as great as at present, would be drawn from so many sources that the quantity taken from each would be so small as to be almost inappreciable and certainly not more than a just compensation for the services which most of these birds render.

5. There is, I feel confident, no real demand for bird-services either in the country or city, which cannot be met by our native species if they are properly protected and encouraged. The Chipping Sparrow, for example, is becoming quite as familiar as its English cousin, while its possibilities for usefulness far exceed it. It possesses an amiable disposition and is too small to do material damage by destroying grains. It rears several broods each season and is very fond of caterpillars of various kinds, among them cut-worms.

Considering this subject in a large sense, I can not feel that a serious mistake was made when the English sparrow was introduced into this country, and that we should rid ourselves of it before it becomes more numerous.

A valuable compilation of opinions in regard to the English Sparrow, for and against, is to be found in Prof. J. H. Comstock's "Report upon Cotton Insects" for 1879, published by the Agricultural Department at Washington. F. H. KING.

TORNADOES.

It seems quite legitimate to consider whether tornadoes are normal or abnormal manifestations of nature; or, sequently, violent convulsions, having their origin in the disorders of the moral world. And, although it appears to be universally admitted—at least by those having a tolerable understanding of nature's laws—that their cannot be an *effect* without a *cause*, and, presumably, also an *end*; yet there is a vast difference of opinion as to the sphere where causes originate, as well as the plane upon which ends have their final or ultimate consummations. Neither is there a well understood agreement among men as to whether there is an *end* or not, nor as to whether certain physical phenomena are *causes* or *effects*. Without intending to be dogmatic in our views, we think we recognize that there is daily developing a well defined belief that all *causes* have their origin in the immaterial world, that *effects* are manifested in the material world, and that *ends* have their culmination either in the material or immaterial worlds, or in both, according to circumstances. It is true, that there are some minds peculiarly bright upon all subjects within the physical realm, that are entirely unable or unwilling to recognize anything phenomenally transpiring beyond the borders of the material world—a sort of "hard-shells," terribly distressed in yielding credence to anything less tangible than "hockwheat cakes and sausages." Such are "joined to their idols," and no one need envy them; nevertheless, let no man judge them, unless he can "judge righteous judgment," and, it may be interesting to know that an *ultimatum* of such a judgment cannot be accorded by one who is not in the exercise of a rational faith. Fundamentally, truth is truth, whether it is received and appropriated as truths or not, whether believed or not.

The present age seems to be one that has been, and is peculiarly distinguished for its storms, cyclones, and tornadoes; not only in the meteorological realm, but also in the social, the commercial, the professional, the mechanical, the industrial and the moral realms—and not only in *these*, but also in the realms of vice and folly, and conspicuously in the realms of so-called recreation and amusement. One tornado succeeds another at the present period in the base-ball circle, and its participants and auditors are daily drummed up as violently and as perseveringly as ever recruits were drummed up during the tornadoes of the "Great Rebellion." The tornadoes on the "rail," whether for trade, recreation, or amusement, often hurl merchandise to the "hoods or the flames," and humanity, unadvised, to the tribunals of eternity. Tornadoes in the banking and stock-gambling realms dissipate colossal fortunes as the sun does a morning mist, and loosen the moral bonds which erst have been the safeguards of business integrity. Such eruptions are most pernicious in their moral and commercial effects.

To many people, the knowledge that the firm of DOLAN & ROE have defrauded their creditors out of seven millions of dollars, it is the first intimation that such a sum as seven millions exists in the world, and they wonder by what species of legerdemain it should all have gotten into the coffers of Doc & Roe, and they have gotten none of it. The world is daily becoming more restive under the slow but sure systems of commercial and industrial manipulation—hence everything must be moved by sensation, by cyclone, and by tornado. It is true, that as meteorological tornadoes work a purification of the physical atmosphere, even so those relative phenomena may be permitted in order to purify the moral, the social and the commercial or financial atmospheres; but it illustrates a low condition of humanity, when such violent means are necessary to its purification.

And now, the various political parties having chosen their "standard-bearers" in the pending contest, we may legitimately look for political tornadoes. Two have already occurred in the massive gathering it was deemed necessary to convene, in order to carry out the aims of individual selfishness, under the special pleas of serving the country and its constitution.

Two men are set up for office whose characters will be so blackened by the tornadoes of abuse, before the ides of November next, that unsophisticated humanity may well wonder from what platonian region they have been raked up.

It is difficult to comprehend the necessity of such a course, but whatever may transpire men cannot rule it out of the order of that permissive Providence, which only suffers the least evil to prevail without violating human freedom.

Men have thought and labored long and intensely on the subjects of storms, cyclones, hurricanes, tornadoes, and the various other meteorological phenomena which have occurred at various times and places, without coming to any definite conclusions as to the real cause of these convulsions in the realms of nature; and the greatest obstacle to the solution of the problem has been in attempting to confine causes, effects and ends to the narrow boundaries of the physical world. Phenomena have been set down as *causes* which have been in themselves but mere *effects*, or the media, or vehicle through which an *anterior* cause has been visibly manifested as a correlative effect.

In contemplating the scenic surroundings of our "first parents in paradise," as they have been portrayed through the conception of the historical artists, there is an immense contrast between the before and after of their notable expulsion. Before man's first disobedience all was innocent, tranquil and entirely subordinate to the will of the Infinite; but after that event how very changed, not only the visage of poor humanity, but also the very aspect of nature's domain. Fear, shame, mental anxiety, insubordination and animal ferocity, accompanied by elemental convulsion, characterized the scene.

It is sufficient to say in this place, that so long as there is sinning in the natural world there will also be sorrowing. So long as there

are convulsion, tornadoes and cyclones in the moral world they are likely to have an outward manifestation in the physical world. If these furnished no moral plane of influx they could not injuriously ultimate themselves. Perverse humanity furnishes the plane of the moral influx, and their outer manifestation will be in correspondence with their inner forces. But somehow the preconceptions of poor humanity cannot or will not see nor acknowledge anything that lies beyond its physical vision.

"THE FIRE WORM."

This pest which has appeared in Westchester county, N. Y., and is moving eastward is thus described by a correspondent of the *Sun*,—*Country-side*.

"The devastating creature is called the fire worm, because the apple trees look as though scorched by flames after the worm has left them. The leaves are devoured down to the little leafstalk and ribs, and these turn red. The young fruit withers and falls off. The worms are black, smooth, and about three-fourths of an inch in length. They crawl like measuring worms. When the limb on which they are feeding is jarred they drop down in showers, spinning webs on which they ascend if they are not further disturbed. The worms made their first appearance for this season two weeks ago. The trees that they attack are crippled, not only for this fall's crop, but for the next fall's, for they will not recuperate in time to bear next season. All that has been done so far is to plough up the orchards in the hope of turning under the worms and eggs, and lessening the swarm that will come out next spring. The other day a man went out with an ox team to plow among the trees. The worms drove him out. The worms swarmed over him and the oxen till they were black with them, and he had to give it up. When a man stands under a tree and jars a limb the worms shower down upon him and almost stifle him. In the villages people walk in the middle of the streets rather than encounter the swarms of worms that are dangling from the apple trees which overhang the side walks. At Pleasantville on Sunday evening the people found the worms had taken possession of the front of the Presbyterian Church, covering the steps and door with a black, wriggling coat. The other day I saw Stephen Palmer, of Pleasantville, sweeping the worms down from the back side of his house. The house happened to be in their path, and they went right up the clap-boards and into the windows, and would have filled the rooms up solid if he hadn't discovered them in the beginning and commenced fighting them. A curious thing about the worms is that when they drop to the ground they always start toward the east. Eastward the star of these myriads takes its way. I don't see how they can keep straight on the points of the compass after spinning round and round as they come down on their webs; but just as soon as one of these worms touches the ground he strikes toward the east. They attack nothing but apple trees. When they begin crawling toward the east, they continue till they find an apple tree in their path. Up they go and devour every leaf on

it, and then they drop down and resume their eastward march."

The foregoing description of the "Fire Worm" we clip from the columns of the *Country-side*, which credits it to the (N. Y.) *Sun*—or rather a correspondent of the *Sun*—and an intelligent, but somewhat profane presence at our elbow, asks—"What the devil is it?" Hundreds of such paragraphs get into the various publications of the country, but they mean nothing practically, and instruct nobody, if they do not absolutely mislead. The Chief of the Entomological Division of the Department of Agriculture sends out circulars of inquiry upon these subjects, and it seems singular that the people who suffer from infestations of these "black worms" do not make an effort to know something about them themselves, instead of being at the mercy of sensational correspondents of unlearned editors and publishers. "They crawl like a measuring-worm," seems to imply that they are the "Canker-worm"—or rather one of the canker-worms—for there are two species; one called the "Spring canker-worm" (*Anisopteryx vernata*), and the other the "Fall canker-worm" (*Anisopteryx pomatoria*), both infesting the apple trees, and neither of which would be hurt much by "ploughing them down"—if such a thing were at all likely—for that is just the condition they require in order to effect their transformations, after they have completed their worm-life; and as to ploughing their eggs down, that would be an impossibility, unless the whole tree were also ploughed down. If these worms were so exceedingly accessible as the *Sun*'s laud correspondent represents, the citizens of Westchester county must be very simple, or very indolent, if they could not have found out some means to destroy them; for they are not so approachable in any of their other forms as they are in the worm-form. With little regard to truthfulness, or to use, there is too much proneness on the part of correspondents to create a *sensation* in such cases.

We quote the following from page 6, *Randall's Notes on Natural History* (Providence, R. I.), Vol. I, as being the deliverance of Dr. W. O. Brown, at a meeting of the "Providence Franklin Society," held on the 16th of last June. He also gave an instance of a man in Johnstown saving his orchard from the ravages of the "Canker-worm," by showering the trees with a mixture of Paris Green and water, it being "perfectly effective." That, or almost any other remedy would be better than to stupidly attempt to fight the insects with such "slow-coach" weapons as an ox and plough.

We might infer from the paper we have quoted that Westchester county must be a sort of "Egypt," having no knowledge of the late Dr. Asa Fitch, who labored in the field of entomology for more than thirty years in New York State, and published many volumes and papers on the life, habits, &c., of noxious insects. Nor of Mr. Lintner, the present State Entomologist; nor of the Buffalo, nor the Brooklyn Entomological clubs. Of course we are not certain that the "Black-worm" referred to is a "Canker-worm," but, from the description and the fact that this worm has been destructive on Long Island, and

many places in the East, we infer that it is. Ploughing the ground while the trees were so full of worms as to be able to drive a man and an ox out of the orchard, must be regarded as a very silly process, and if it had been accomplished would only have put the soil in a very good condition for the worms to enter after they had matured their larval development, and there they would have gone of their own accord. This worm can only be conquered above ground, and if not exterminated whilst on the trees then traps must be set to capture the females as they come up out of the ground in the spring, and very early in the spring too—indeed, during warm spells, in the months of February, March and April, they have been known to come up and ascend the trees, hence various kinds of traps have been attached to the trunks, entirely surrounding them, to capture the female moths, for they are wingless and can only get on the trees by crawling up the trunks. The males have wings and can fly, but they do no further harm than fertilizing the females. If, therefore, the females are destroyed before they deposit their eggs the work of extermination is accomplished. This work may not be agreeable, but it must be done.

In any event, application should have been made, at the proper time, (it may now be too late) to the Department of Agriculture at Washington; it might have sent on a commissioner of investigation, for this is the very information it has been seeking for years past.

Gapes in Chickens.

Here we quote a case of a different character, in which an attempt is made to establish a theory in regard to the origin of the "Gape-worm." In the editorial columns of *The Poultry World*, for July 1884, we find an ably written article (in the main) on this subject, which we regard as erroneous, when the writer infers that because the "Bot-fly," "Sheep-fly" and other insects, are worms in one of the forms of their development, that have been bred from eggs deposited by the fly of said worms, it therefore must follow—or is likely to follow—that the gape-worm is but the larva form of some winged insect that deposits its eggs in the nostrils of the chickens, or in the soil, and is thence picked up (by the chicken) and then gains access to its mouth or wind-pipe, "where both heat and air favor its growth, till it arrives at maturity, and is ejected to repeat itself as a fly, larva and worm."

It is true, that the history and development of the *strongylidæ* are somewhat complicated, and difficult to study, but it does not follow that they are the larva of winged-insects; or "flies," any more than it follows that Tapeworms, and other stomach, intestinal, and anal worms are the larvae of winged insects; or that Trichinae, Hair-worms, Filarians, or Vinegar-worms, are the offspring of insect forms. They belong to entirely different families of the animal world; and any effort directed towards their identification with the insect world, will only be labor in vain. The paper we refer to is in the main a good one, and here we would suggest that ejected gape worms should be immediately burnt or scalded; because instances are on record where they have revived by heat and moisture, after having been dried from ten to

fifteen days. Eggs have been discovered in their bodies, as well as in Hair-worms, which is never the case in insect larvae.

MAPLE TREE PESTS.

The maple trees in the suburbs of the city are being destroyed by an insect on an extensive scale. The same insect is making inroads in the maple groves in New York, and Prof. J. A. Lintner, State Entomologist of New York, to whom some specimens were sent, says:

The specimens sent, attached irregularly to the lower surface of maple leaves, about twenty on each leaf, are white cottony masses, of from three to nearly four-tenths of an inch long, about one-half as broad, of a sub-oval form, bearing upon the narrower end a brown scale, which is rounded in front, usually irregularly contorted behind, as if from drying, and crossed in the more perfect examples with three or four transverse ridges.

They belong to the *Coccidæ*, or as more commonly known, scale insects. Their common name—drawn from the tree upon which they more frequently occur—is the maple tree scale insect. The species was first described by Dr. Rathvon, of Lancaster, Pa., in the year 1854, who found it occurring "in such countless millions" upon some linden trees, that he gave it the name of *Coccus innumerabilis*. A few months thereafter (in 1855, Dr. Fitch received examples of it from an osage orange hedge in Ohio, and deeming it identical with a fig-tree *Lecanium* of Europe, he simply described and figured it, with the remark that if it proved a new species it should be known *Lecanium macularæ*—the specific name taken from the plant upon which it occurred. In 1860 the species again came under the notice of Dr. Fitch, as infesting maples in Albany and vicinity, and not recognizing it as the osage orange insect, he proposed for it the name of *Lecanium aceris-corticis*. In 1868 it was received by Messrs. Walsh and Riley, as infesting maples and also as occurring on osage orange, and was described by them as *Lecanium aceris-corticis* and *L. macularæ* (American Entomologist, i, 1869, p. 14, fig. 8). Although marked differences have been pointed out in these several forms, they are believed by those who have most closely studied them, to be the same species with that first described by Dr. Rathvon, and now known as *Pulvinaria innumerabilis*.

While many of our scale insects appear to be confined to a single plant, this species, from some peculiar adaption to varied conditions, has quite an extensive range, having been reported as found upon maple, osage orange, linden, locust, sumac, box-elder, beech, willow, grape, currant and rose. From such a range, together with its large size and enormous processes of multiplication, it may properly be numbered among the more injurious species. The scale of this insect consists of excretory and exuvial material. The white, cottony matter, which is so conspicuous a feature of it, in the later stage of its existence, is a secretion for the protection of the eggs and the newly-hatched larvae.

The life histories of this and of other scale insects are full of interest, but they cannot be briefly given, and therefore those who desire to become acquainted with them should refer

to some of the many valuable papers in which they have been treated at length. This particular species has been the subject of an elaborate paper, of some fifty pages and two plates, by the late J. Duncan Putnam, of the Davenport (Iowa) Academy of Natural Sciences, which, from the extremely careful study of which it is the fruit, may justly serve as a model for similar biological work.

For the scientific study of the family, reference may be had to a report, on Scale-Insects, by Prof. J. H. Comstock, contained in the Annual Report of the Commissioners of Agriculture for the year 1880. A second report, on the same insects, in continuation of Prof. Comstock's special study of them while entomologist to the Department of Agriculture, has just been published in the Second Annual Report of the Cornell University Experimental Station. It is devoted to one of the sub-families of the *Coccidæ*, the *Diapariæ*, and treats of 121 species, a number of which are for the first time described. In addition to these, nearly 50 species of other North American *Coccidæ* are noticed.

As the scale-insects, when they abound are exceeding injurious to the vegetation that they attack, it is of great importance that all who are liable to suffer from their injuries should know how they may best be destroyed. Although serious pests, they are not beyond control if the proper remedies be resorted to.

When scale-insects are discovered infesting a few trees in an orchard, the trees should be cut down and destroyed at once, as the best way to arrest the evil.

The species that are confined to the trunks and larger branches of shade and other trees, may often be destroyed by scrubbing with a stiff brush, wet with strong soap-suds.

If the foliage is infested, a force pump or garden syringe must be employed for spraying the insecticide. The two best insecticides for the purpose are soap and kerosene. The first has been thoroughly tested in many experiments by or under the direction of Prof. Comstock, and is strongly recommended by him, to be used in the following manner: In a gallon of hot water one-fourth of a pound of whale-oil soap is dissolved, and its application is made at a temperature of about 100 Fahr. It should be repeated after an interval of a few days. As the result of other experiments subsequently made, it is stated that one pound of concentrated lye to one gallon of water will effectually destroy all scale insects, drying up the scales and eggs beneath them, and killing the young insects if hatched.

It is asserted, however, by Prof. Riley that whale oil soap and lye fail to kill the eggs of scale insects, and he therefore urges the use of kerosene as greatly superior to them, and decidedly preferable to any other known substance for the eradication of these pests.

The most simple way to apply the kerosene is to mix it with water, for undiluted it is destructive to many kinds of vegetation. As it separates quickly from the water, it requires to be kept in constant agitation, which may be done by discharging the syringe or pump several times into the pail before applying the liquid to the trees, and continuing to alternate the discharge from the tree to the pail. By far the best way in which to use kerosene for insecticidal purposes, is to make an emul-

sion of it, with milk or other substance, which may be readily diluted to any desirable degree for more tender vegetation. How to produce such emulsion with a moderate amount of labor, which shall be permanent and easily dilutable, is still the subject of study and experiment by our practical entomologists. Thus far, the emulsion and the method recommended by Mr. H. G. Mabbard, special agent of the United States Department of Agriculture, seems to be the best presented. It is as follows: Take of refined kerosene two parts, fresh, or preferably sour, cow's milk, one part (percentage of oil, 66 $\frac{2}{3}$). Mix in a pail or tub, by continuous pumping, with a force-pump, back into the same vessel, through the flexible hose and spray-nozzle. Continue until the liquid curdles into a white and glistening butter, perfectly homogeneous in texture, and stable. The time required varies with the temperature; at 60 it will be from half to three-quarters of an hour; at 75 fifteen minutes. Heating the milk up to the boiling point will facilitate the operation. The kerosene butter, when needed for use, will mix readily in any proportion of water, if first thinned with a small quantity of the liquid.

Should the kerosene butter, which has only been brought to public notice in the last annual report of the entomologist of the Department of Agriculture be found, upon further experiments with it, to fully meet present expectations, we may expect that it will soon be manufactured upon a large scale, and offered in convenient packages for general sale. Made with sour milk, it is said to keep unchanged for any length of time. Its cost need be but trifling. It should be one of the best, if not the very best, of our insecticides, for kerosene has long been known to be fatal to all insect life with which it comes in contact.—*Pittsburg Chronicle Telegraph*.

EXCERPTS.

CMICIFUGA is said to cure epileptiform nightmare.

DR. BEALL, of Texas, reports the favorable use of gelsemium in tetanus.

LOSS OF MEMORY.—Consult for this infirmity the inclinations of the invalid and give them free reins.

Dry ashes applied to a cut will stop bleeding, and will if left on a few hours, hasten the healing process.

COLD EXTREMITIES.—The Turkish bath and a liberal vegetable diet has achieved wonders in this affection.

For eczematous sores in children and old people, Dr. Dühring recommends an ointment of five grains of iodide of lead to the drachm of vaseline.

SPIRITS camphor and starch applied to a burn will extract the fire and give speedy relief. The starch should be kept moistened with camphor.

SPONGING the surface of the body with a solution of quinine in alcohol—one drachm to the pint—is now recommended for excessive sweating. It is a remedy that has long yielded us good results.

For inflammation of the eyes in new-born infants: Cleanliness, quantum sufficient; Sul-

morphia grs. ss.; fluid hydrastis, dr. ss.; sul. zinc, grs. ss.; aqua pura, oz. iv.; mix. Apply every four or two.

ULCER OF THE THROAT.—Gargle a solution of one part Yerba reuma to seven of water. Then take an alternative composed of one part of stillingia and two parts of syrup in teaspoonful doses four times daily.

OIL of wintergreen has lately received considerable attention from therapists, as a remedy in rheumatism. It is said to be superior to salicylic acid in its effect. Ten drops three or four times a day, in a little milk or flaxseed tea.

DR. VALE is reported as ascertaining that from 7,000 cases of anesthesia in the London hospitals, every case manifested alarming symptoms and all of those that were rolled over on their left sides recovered, while those turned to their right sides all died.

INHALATIONS of carbonic acid are recommended by several authorities in the *Rev. de Therap.*, December 15, 1883. It is obtained from an apparatus for making Seltzer water, and was slowly inhaled through a long rubber tube placed at the nasal orifices.

A RUSSIAN physician has accidentally noted the good effect of ergot in delirium tremens. He believes the good results are due to the power of the drug in contracting the capillary vessels of the brain. The dose employed was one to one and a half grains.

GE. FOTHEGILL'S ASTHMA MIXTURE.—Tincture lobelia, five ounces; ammonii iodidi, three drachms; ammonii bromide, three drachms; syrup toluanti, three ounces. M. Teaspoonful every one, two, three, or four hours. This gives relief in a few minutes, and sometimes the relief is permanent.

RIGOLINE spray is recommended in the treatment of neuralgia, especially of the portio dura of the seventh nerve. It is said to give almost instantaneous relief, and in some cases to effect a complete cure. Its action is explained on the supposition that the intense cold effects a radical change in the nutrition of the nerve.

AND now comes a chemist and explodes the theory that unbolts flour is the most nutritious, by stating that experiments show that it is harder to digest. The most sensible plan to follow is to eat what experience has proved agrees with us. A healthy stomach is the chemistry for its own food. Give nature a chance.

DR. HOLMES relates the following to illustrate the significance of small things in the sick-room: "Will you have an orange or fig?" said Dr. James Jackson to a fine little boy now grown up to goodly stature. "A fig," answered Master Theodore with alacrity. "No fever there," said the good doctor, "or he would certainly have said an orange."

INFANTILE TROUBLES—such as croup, whooping-cough, scarlatina, measles, porrigo, and all skin affections and debility—give good nourishing diet containing little or nothing of a starchy nature; keep the bowels open, and the chamber well ventilated, and give medicine a wide berth. Under such conditions it will be ten to one in favor of the child.

THE FIG MUST GO.—Dr. H. G. Lochmand, a retired physician of St. Louis, for years has

devoted himself to a study of trichinae, and he says, as reported by the *St. Louis Post-Dispatch*: "I find the meat infected right here in our pork-houses and in the butchers' stands in our markets. I have examined specimens from twenty-four hogs and have found eleven infected, that is, forty per cent."

POISONING.—In one dozen cases of poisoning from the bite of the rattlesnake, iodine proved curative, given in one or two drop doses of the tincture every hour, according to the severity of the case. In one instance, where the patient was swollen terribly, mottled spots appearing over the entire body, breathing with great difficulty, and apparently near death, four drops of iodine were given every hour, with entire recovery.

THE American Journal of Otolgy reports the following: "A doctor of extensive practice suffered from a crackling noise every night just after going to bed. He happened to mention his sufferings to one of his lady patients, who told him of a case she knew where the noise was found to be due to maggots in the pillow. The doctor examined his own pillow when he got home and found plenty of maggots, the pillow having gone far toward decay. A new pillow cured him."

PREVENTION of summer complaint in children, according to Dr. Little, can be attained by giving them plenty of water. He had been physician to a children's orphan asylum for twenty-two years, and every summer there had been enteric disease. In the summer of 1882 he ordered that the infants be fed only every three or four hours, and that water be given if the child cried in the interval. There was not a single case of enteric disease in the institution during that season.

ENLARGED TONSILS.—Having frequently tried and often failed to cure enlarged tonsils by internal remedies, I at last hit upon the following surgical method of getting rid of these troublesome glands, which I have pursued successfully for the last two or three years. I take a pencil of caustic potash, whittle it down to a point cover it with paper up to a fourth of an inch of the point, which I place upon the center of the tonsil and keep it firmly pressed there for about three seconds. Then withdraw it and gargle the mouth with vinegar. Repeat the operation twice or three a week, placing the pencil always in the same depression. I have cured the largest tonsils in less than one month. Having eradicated one, proceed the same way with the other. Appropriate internal treatment should be given during the operation.

WESTERN CORN IN EUROPE.—Considerable progress has been made in the substitution of corn for wheat and rye as the bread grain among Europeans, and as a substitute for oats and other horse feed, on account of cheapness. The disproportionate expense of transportation and handling is, however, a ruinous obstacle. Corn on the farms in the Western States bringing 25 cents per bushel, costs as much more to ship to Chicago. Adding to this the freight to Liverpool and commissions increases the cost of the latter place over 150 per cent. The average price of No. 2 corn in Liverpool is 77 cents per bushel, more than three times its price at the farm. The increased use of condensed meats, etc.,

in foreign countries, suggests that the economy of transportation may lead to the preparation of and trade in the condensed form of maize.

POTATO ROT.—Col. F. D. Curtis writes to the N. Y. *Tribune* that his father, 30 years ago, when rot was troublesome, felt sure he warded off the disease to a greater or less extent by sprinkling slaked lime on the cellar floor and spreading potatoes a foot thick, dusting them every few inches with the same substance.

THERE is no profession which can be compared in importance to that of agriculture, for to it belongs the production of food for man and for animals; on it depends the welfare and the development of the whole human family, the riches of States, and all industries, manufacturing and commercial. There is no profession in which the application of correct principles is productive of more beneficial effects, or is of greater or more decided influence.

MILK AS FOOD.—At the Vermont Dairy-men's Convention Mr. Cheever, speaking of milk as food with and without its cream, said "The robust forms of the European emigrants who use it extensively in their own countries refute the idea that milk is only fit for babies. The per cent. of water in milk is not so large compared with other foods as is generally supposed. Lean meat is dearer than milk as food. Whole milk is a more complete food for animals or man than skimmed milk, but the latter taken in connection with fat used in cookery is quite equal to whole milk. Skimmed milk is almost a perfect food for pigs in summer. They will live and grow upon it, but they need something more for fattening." Milk contains of digestible substance, album-inoids 3.02, 5 of carbohydrates, and 3.6 fat, and skimmed milk about the same, with most of the fat removed.

THERE is an important difference in apples with regard to their susceptibility to injury from bruises. The Russet, and probably other rich apples, will sometimes "dry up" a skin bruise and continue to keep well, provided the skin is not broken, while with other varieties the slightest bruise quickly hastens decay.

APPLE SHIPMENT IN FREEZING WEATHER.—Mr. G. F. Newton, of Ohio, mentions having once sent 20 barrels to market in mid-winter. "They were detained by mismanagement in transit for over two days and nights, on the track, and on the second day the mercury went down to 12 degrees below zero. There was no fire in the cars, but they went through safe." The secret of this success, as he thinks, was in the precaution he took to "line each barrel with two thicknesses of paper."

The *American Agriculturist* says the practice of strewing a large quantity of litter in sheep-sheds causes the sheep much distress, unless they have hard places to lie upon, because their feet and legs get so hot. It recommends providing a few platforms like old doors, which can be shifted about every few days by turning over. These will be greatly enjoyed by the sheep, and will promote both their health and comfort.

MR. JOHN M. MILLIKIN sends to the Na-

tional Live Stock Journal some interesting statistics showing the money value of the exportation of swine and their products—pork, lard, bacon and hams—compared with that of cattle, horses, mules, sheep and poultry, for the years 1879-80. The total value of the exportation of the latter is placed at \$105,870,382, while that of swine is shown to be \$186,087,726. This is a pretty showing for the swine-breeding business of the country as a wealth producing industry.

If you have choice potatoes to keep for seed put them in a box of sand in the cellar. They will not sprout nor freeze.

ABOLISH the feather duster. Use a cloth—wipe away the dust. Do you know just what you are doing when you brush dust away? You disseminate in the air, and consequently introduce into your own interior, into your tissues and respiratory organs, all sorts of eggs, spores, epidemic germs and murderous vibriations which dust contains.

AN Oregon correspondent to *The Fruit Recorder* sows lettuce with cabbage seed, and says he never had young plants of the latter attacked by the black fly so long as they remained with the lettuce.

In planting early peas and corn the quality of the future crop may be partly known by observing the degree of contraction in them. All peas and corn that seem shrivelled up, with large indentations, will be tender in flesh and contain more sweetness and juice than the plumper kinds. If good table varieties are desired, it is advisable then to select the wrinkled kinds.

WHEN a field or a garden plot receives suitable cultivation and yet fails to be reasonably productive it is evident that some important element of plant food is lacking. If manure has been applied in liberal quantities and yet the crops are not satisfactory it will pay to make a trial of other fertilizers. In different sections of the field several different fertilizers should be employed in order to determine as quickly as possible what particular elements are needed to insure the production of paying crops.

WHENEVER possible, set turkey eggs under a turkey hen. She sticks very closely to the nest, rarely coming off, even to feed. Unlike the eggs of other fowls, the eggs of the turkey will not bear much variation of temperature, and they must never become chilled. When a turkey leaves her nest see that she is cooped in a dry location, as the slightest dampness is injurious to the young ones. They are also very sensitive to filth.

A FARMER who grows both wool and wheat largely and successfully says that it is his opinion that the reason why the yield of wheat per acre in the United States is only half as much as that of England, is because in England the sheep are utilized in connection with grain growing, whilst here they are thought of only as wool and mutton-makers.

PLANTS require food of two distinct kinds: food for their organic part, and food for their inorganic or mineral part. From the stores existing in the atmosphere, in the form of carbonic acid and ammonia, they receive partly the food which nourishes their organic matter in the soil. That which nourishes

their inorganic or mineral part comes solely from the soil. Tillage operations tend to increase plant food in the soil.

SHEEP, no doubt, are the natural residents of high, cool plateaus and mountains; for the wool, a good protection against cold, is poor shelter against rain. It is no use to attempt sheep farming on low, wet soils, for here all the diseases of the animal are rife—foot rot, scab, rot, etc. New England has been the most successful in developing the Merino for the lands are light and high; though much water falls there, it is in the form of snow, which shaken off, does not penetrate the wool like rain.

ALL kinds of fowls are natives of warm or semi-tropical climates. However long they have been domesticated, they retain their liking for warm weather, or at least warm quarters in cold weather. In the winter seasons will do better in close houses, even with little ventilation, rather than exposed to severe weather. When a young chick will rest under its mother's wings in a summer's night at a temperature of 100, or more, there is little danger of smothering an old fowl in winter in a tight house.

The *Country Gentleman* gives the three essentials to success in sowing small seeds, whether of farm crops, garden vegetable, or flowers. They are—a finely pulverized covering, a depth according to the size of the seed, and a moist surface until the plants are well rooted.

I HAVE just cut back the stray branches of a philadelphus—*o*—of the fragrant old-fashioned variety known as coronarius. (Can some one tell me why these shrubs are called *syringas*?) There is a later flowering variety which does better if left to itself, but this mock-orange, when the old wood is sharply pruned after blooming, develops masses of foliage which break into deep shadows and give a certain dignity of character which few shrubs attain. Late in July last year I saw the banks of a mountain stream in Northern Montana fringed for miles with a native philadelphus in full bloom. The pure white of the flowers against the rank green of the foliage and the graceful arching of the branches toward the cool water which foamed and tumbled below made a picture not to be forgotten. There is a dwarf variety which also comes from the Rocky Mountain region, a compact little shrub with light green foliage. I have never seen it in cultivation—except at the Arnold Arboretum. It blooms abundantly about this time and is one of the most promising of our small native shrubs.

It is late to speak of hardy azaleas—for their flowers dropped ten days ago—and when the flowers are gone there is little left to admire. In richness of color when in bloom, however, these shrubs stand easily first. I have found the *azalea mollis* as lurly as the more common Ghent varieties and as the flowers run through a different range of color both kinds should be planted. Azaleas are provokingly deliberate in their way of growing. For two or three years after planting you can hardly see them move, and, when hope is almost dead, a shoot will take a sudden start some fine spring morning and grow a yard before midsummer. Old plants—like

some in New York Central Park, which stand nearly twenty feet high—are striking objects in early June when all ablaze with red and orange.

LANCASTER COUNTY AGRICULTURAL FAIR

To the Public.

OFFICERS—B. J. McGrann, President; J. Hay Brown, Vice President; Hon. John T. MacGonigle, Treas.; Jacob B. Long, Sec'y.

MANAGERS—W. H. Brosius, Draumer; E. H. Burkholder, West Earl; M. B. Weidler, Leacock; B. S. Patterson, Little Britain; Leopold Musselman, West Lampeter; Jacob M. Frantz, Lancaster; M. L. Greider, Rapho; Henry Worst, Jr., Salisbury; B. F. Eshleman, city; H. D. Kurtz, Conestoga; John H. High, East Earl; Joseph F. Witmer, Paradise; John S. Mann, Manor; John S. Hoover, West Hempfield; Simon B. Cameron, East Donegal; John A. Styer, Cernarvon; J. A. Stober, West Coaclico; Geo. W. Hensel, Eden; Johnson Miller, Warwick; M. H. Wenger, East Lampeter; C. Bachman Herr, Manor; A. C. Ilyus, Manheim; John L. Gingrich, West Donegal; H. N. Brannenman, Strasburg; Henry S. Stehman, Penn.

Lancaster county, in common with many other counties in Pennsylvania, first put in motion the movement for holding a Fair early in the decade 1850-1860. Seeing the beneficial results to be attained in bringing together those engaged in agricultural, horticultural, mechanical and other economic pursuits, many of her best citizens agitated the holding of a County Fair in 1850, which resulted in an organization for the purpose in 1851, in which year the Fair was held. The officers in chief of this organization were the Hon. John Strolm, President, and Hon. D. W. Patterson, Secretary and Treasurer. The second fair held was at Columbia, in 1852, was presided over by the same president, and David G. Eshleman, Esq., Secretary and Treasurer. In consequence of the cholera breaking out in a most malignant form, the fair was not a success and the society, under whose management those fairs were being held, dissolved. Later on in the decade, about 1857 or 1858, it was re-organized with Joseph Koinigsmacher as President and D. G. Eshleman, Esq., as Secretary and Treasurer. The next change in the organization was in the election of the Hon. F. C. Brinton, as President, and Mr. Eshleman continuing to act as Secretary and Treasurer. Successful fairs were held on the grounds in the northwestern part of the city until 1861, when the call to arms banished the avocation of peace. The fair grounds were taken as an encampment ground. The old society died out and never re-organized.

In 1868 the Lancaster County Agricultural Park Association was organized under the Presidency of S. S. Spencer, Esq., B. J. McGrann, Treasurer, and Jno. T. MacGonigle, Secretary. The buildings and grounds were of the best kind, and the Association had every reason to expect in so rich and extensive an agricultural county as Lancaster the most liberal encouragement, but after years of struggle the Association succumbed to adverse fate. During the early life of the Association there was a very grand fair held, at

which the most liberal premiums were given for everything exhibited. In 1852 and 1875 the State Agricultural Society held very successful fairs on the grounds of the Park Association. In 1883 Mr. Snavely, an enterprising individual of Orrville, Ohio, gave a successful fair on the same grounds, which had passed by purchase into the possession of B. J. McGrann.

Taking courage from what our people have done for the State Society, in 1857, and for an individual in 1883, the management, whose names may be found above, have determined to establish here a permanent annual fair, having for its object the development of the best interest of the farmer, mechanic, artist and inventor. We ask the hearty co-operation of all our people. We shall probably not give entire satisfaction to all, but in anything we shall fall short we at least ask credit for doing the best we know how. We want to fill the purposes of a County Fair in every particular. We have as good grounds and location as any in the State; the buildings are good, the arrangements will be such so as to give comfort and afford convenience to the exhibitors and visitors. The street railway carries passengers to the fair gate. The premium list will enable exhibitors to bring their wares and stock to the grounds, where it is believed the most numerous and intelligent visitors attending any County Fair in the State will inspect them and pass upon their merits.

THE MANAGERS.

RULES AND INSTRUCTIONS.

For Entries, &c.

1. All entries except for Speed Premiums must be made at the Secretary's Office, 6 West King Street, Lancaster, Pa., before 9 o'clock on the evening of Saturday, August 30th, and must be on the Fair Grounds by noon of Monday, September 1st.
2. Every Exhibitor must, on making his or her entries buy an Exhibitor's ticket, which entitles the holder to two admissions on each day.
3. No Entry Fee charged on an animal or article except on horses entered for trials of speed.
4. All entries must be made in strict compliance with the Premium List and awards made in accordance. Parties must, therefore, take particular pains to have *stock and articles entered just as they want them.*
5. When an entry is made of any stock or article, the Secretary will give to the party a card, which will contain the number, entry and class, which must be attached to the stall or article, otherwise it will be passed over by the judges without notice.
6. No animal will be allowed to run at large on the Grounds. Every article or animal upon the Grounds shall, during the Fair, be under the control of the Managers; and while every possible precaution will be taken for the safe keeping of the same, the Managers *will in no case be responsible for any loss or damage that may occur.*
7. No animals or articles entered for exhibition, can be taken away before the close of the Fair, except by permission of the Secretary, and no premiums will be given or paid on animals or articles removed in violation of this Rule.

8. Hay, straw and water will be supplied, free of charge, for all animals entered for premiums; and grain will be provided at the lowest cost price for those who desire to purchase.

9. An ample police force will be on the Grounds day and night. They will be sworn in as conservators of the peace, having authority to arrest disorderly persons.

The Board of Managers will meet for the transaction of business daily, at their office, on the Grounds, during the Fair.

10. The gates will be open to the public at 8 A. M. and close at 6 P. M., each day during the Exhibition. All wagons or other vehicles used in the transportation of forage or refreshments, must be removed from the Grounds before 9 A. M., and no persons will be permitted to remain on the Grounds during the night, unless especially authorized by the Secretary or Chief Marshal.

11. All precautions will be taken by the authorities of the city and the officers of the Society to secure the safety and comfort of visitors. Gambling of any kind whatever is strictly prohibited.

Remember this fair closes September 6th, giving exhibitors plenty of time to forward their exhibits to the State Fair in Philadelphia, which opens September 8th.

The Pennsylvania and Reading Railroad Companies will, upon payment of freight charges one way, return exhibits free, providing they have not changed ownership, upon certificate to that effect from the Secretary.

For Awarding Premiums.

The Judges will be chosen with great care from different sections of the county, who will not deviate from the schedule of premiums, as offered, under any circumstances. Judges will not award any animal or article a premium, unless in their opinion the same is *decidedly meritorious.* If anything, in their judgment needs honorable mention or premium, they will so designate in their report, when the matter will be given due attention.

Unsound animals will not be awarded a premium, though there be no competition. The age of a horse shall be computed from the first day of January in the year in which he was foaled.

The following resolution of the Society, adopted June 5th, 1854, will be strictly carried out: "*Resolved, that no one be entitled to a premium for any horse, (unless for speed) cow or heifer, unless the same has been in his immediate possession or ownership for at least three months preceding the date of the fair.*"

In judging of blooded stock, regard will be had to the purity of blood, established by pedigree, size, form, action and general characteristics of the various breeds, making proper allowances for age, feeding and other circumstances. *Pedigrees of all thorough-bred animals (or blooded stock) must be furnished at the time of making the entries, to entitle them to premiums as thorough-breds, otherwise they will be treated as grades.* Committees are particularly requested not to give encouragement to over-fed animals in the breeding classes.

The premiums in the trials of speed will be paid when the Judges appointed *shall certify the same to the Secretary.*

Entry cards must be attached conspicuously on the animals or articles exhibited. Horses and cattle not ready in time and place, will be ruled out of competition.

Competitors for premiums cannot be present during the examination by the Judges, unless especially requested by the latter.

Instructions to Judges.

1. You will receive your Committee Books and enter upon the discharge of your duties, at 10 o'clock on Wednesday, September 3d. The Committee Books will refer you to the number allotted to the different animals or articles.

2. Animals or articles which have no competition will be awarded a first or second premium, according to merit.

3. You will award no diploma, unless it is especially named in the class you judge; but if you find anything meritorious in your class, and not provided for, you will report your opinion to the managers.

4. Permit no person to interfere in your deliberations. Competitors attempting to interfere with committees will forfeit their right to a premium.

5. The age of horses shall be computed from the first day of January of the year in which they were foaled.

(Special Notice.)

No pools or games of chance of any kind will be allowed on the Fair Grounds.

CONTRIBUTIONS.

OBSERVATIONS ON THE CROPS OF 1884.

Our cereal and our fruit crops are generally good: our wheat, oats and rye, about an average; and 100 per cent. for corn. Tobacco looks promising, apples, pears, plums, cherries and grapes, are perhaps a little over an average crop. We have just secured one of the very best harvests; and, so far, have had throughout one of the most prolific fruit and cereal crops that we have had for many years.

Notwithstanding the unfavorable character of the weather at the last fall plowing and seeding, the outcome has been satisfactory, except among those who are hard to please, if there are any such.

The reports of the yield of the wheat crop per acre, are from twenty up to forty, and one report fifty, bushel; which is not in harmony with the alarm of some of our older farmers, about the impoverishment of our farming lands.

The burden of farm labor is greatly facilitated by the introduction of the most improved reapers, and especially the self-binders, which every year will become more in demand and use. We hear of \$1.25 per acre, as the cost of putting the crops into sheaves, which is cheap indeed.

We have also other labor saving implements, and, in some directions, there seems to be no limit to the improvements. With perhaps, a single exception, among the most prominent implements, the difference between now and sixty years ago, seems almost a miracle; and that exception relates to the plow, and plowing. It is true, the Western States seem to be running away from Pennsylvania (and especially Lancaster county) with their *sulky-plow*: still, that implement

does not transcend the common plow by any means, as far as the modern reaper does the sickle, or the thrasher does the *tramping* of the horse or ox-team.

Our tobacco crop will be an unusual one the present year, on account of the free use of the Havana seed. We might put it down as an average of *seventy-five* per cent; although some of it is ready to top, others is still very backward.

Every body expects good prices. We have already heard of 25 to 30 cents, all round, being offered for Havana.

We have had copious showers of rain, and most of them at the proper time—from three to six inches—but just at the present time (July 20) everything seems to indicate a "dry spell."

This thing of rain occurring just at the proper time, involves more than our superficial observations take cognizance of. Rains according to their gentle or violent descent, facilitate, or frustrate entirely, the fertilization of all flowering vegetation. Fruit trees, violently struck by a dash of cold rain or hail, have become barren on the side stricken, whilst on the opposite side there was an abundant crop. Some of the oldest and most experienced fruit growers confidently believe this to be a very frequent cause of the failure in fruit crops.

P. S. R.

LITITZ, July, 1884.

HOW FARMERS SHOULD LIVE.

BROOKVILLE, Ohio, July 1, 1884.

EDITOR LANCASTER FARMER.—Sir: I am thinking that a communication on "how farmers should live to avoid dying prematurely" might be appropriate. Of all people in the world farmers should live the longest, because their occupation is the most useful. The longevity of all other people depend upon that of the farmer's longevity. A farmer's life ought and should, and can be worth living, they have all the means of enjoyment on their domains; they are Lords of all they survey.

An ounce of prevention is better than a pound of cure. If we understand the laws of nature, so that we could accommodate ourselves to them, it would save us a sea of trouble. When one gets sick or dies the question should be asked, was once in the case of blindness, "Who sinned this man or his ancestors?" Yes, some one or many at different times sinned either immediate or remotely, or very remotely in the case of many deaths, thousands of circumstances contribute to make it possible, I mean premature deaths, and there are very few that are not of that kind. All irregularities in life, including excitements and emotions and passions of all kinds have a morbid effect. Discontent that comes from an inordinate desire to make money, and the mental depression that comes from the existence of debts, has a deteriorating effect on the constitution, hence it is said "owe no man."

There need not be much said about the necessity of farmers being out of doors in the summer time, for there is where they generally are, but in the winter time they are too much in doors, they should understand that if they don't ventilate, they are breathing a deoxidized and carbonated air. This, in

an active and passive way poisons the blood, thereby predisposes to disease sooner or later.

Every farmer should, on account of his own health, and that of his stock, understand the physiology of digestion. To understand physiology, he must to some extent, understand anatomy. Farmers should understand the difference between what is disease, and what is an effort of nature to rid itself of a poison in the system. In many instances, what people call disease, is only a conservative operation of nature. Doctors, therefore, are in many instances, only thwarting nature in her curative tendencies. Pain, hard as it is to endure has its uses, it is conservative in many ways. In view of these facts, farmers should eschew doctors and medicines, as they ought to the evil one. An eminent authority in medicine has written long ago, that medicine had better be thrown to the dogs than be used as it is; it is exceedingly doubtful whether medicine prolongs life under any circumstances. It is only, at best, substituting one kind of poison for another.

An industrious and economical farmer don't need to and should not worry about anything, if he is no speculator he will never come to want, he will know that "Die weisheit ist die wahrheit, und die wahrheit, ist die frucht, (wisdom is truth, and truth is freedom).

A fine crop of wheat, barley and grass; barley is cut and hay is being made. Tobacco is also planted.

The currant worms and potato bugs are unusually numerous this summer. Although the currants are now ripe; a second generation of worms are now feeding on the leaves. The cabbage worm has not appeared yet.

BROOKVILLE, Ohio, July 28, 1884.

EDITOR LANCASTER FARMER.—Sir: A Mr. Freely, of Montana, writes you that he has a calf 14 months and 20 days old that is a mother. Mr. John Join, my neighbor, who never tells lies, for I have known him for fifty years, says he not long since had a grade Jersey calf that became a mother when it was but 12 months and 7 days old. That is a precocity that rarely occurs. Both calves (mother and calf) did well.

After a long continued drought we have had within the last few days, a number of showers. On this account "now is the winter of our discontent over." The probabilities are that we will have a good crop of corn after all. Oats is unusually heavy. While the drought lasted farmers had a fine time to get their wheat and hay into their barns. Tobacco is short, but these rains will compensate for what was lost by drought. As we enjoy every thing by contrast, so is our enjoyment now in proportion to the durability of the drought. New wheat, the best of it, is only selling for 80 cents. G.

SELECTIONS.

TRANSPLANTING TREES.

Statistics at our command plainly indicate that only a very small proportion of the millions of young trees annually placed upon the market ever survive removal, and out of the number that do live, very many eventually die after lingering along for a few years

hence the necessity of line upon line touching this laced-eyed theme. Both theory and practice point unerringly to the fact that, as a tree is a living body governed by organic laws, the process of removal must necessarily interfere very materially with its functions, and, with the best of care, is frequently fatal. Any one at all acquainted with the laws of vegetable physiology is fully aware of the severe shock that a tree's system sustains when displaced from the ground, thereby causing an arrest of circulation that is constantly going on between the tree's system and the soil from which so much of its nourishment is derived. Every tiny fibre destroyed, small and unimportant as it may appear, does certainly lessen the chances for success, and when the greater portion of these vital organs are removed, as is so often the case, the tree is very little superior to a cutting, that is forced to depend upon its own vitality to supply an entirely new set of roots, before growth can take place.

The alarming extent to which evaporation constantly reduces the system, while the tree is out of the ground, is another cause of failure, and one that is especially overlooked. To test the truth of this statement it is only necessary to allow a tree to lay out of the ground without an adequate supply of moisture for a few hours, when the shriveled bark will bear ample testimony to the fact. As a matter of course exposure to the sun's rays as well as to the drying effect of high winds, will hasten the ill effects before alluded to, so that to neglect of this important feature in transplanting is attributable a very large proportion of the failures. Vitality may be frequently restored to shriveled and dried tissues by simply burying the entire tree underground for a short time, after having thoroughly soaked the soil with water, but we should prefer to guard against abuse, rather than be obliged to resort to remedies which are uncertain, and at best only a partial relief.

At the very outset it is the duty of every planter to bear in mind how necessary it is to preserve the roots from injury, therefore a trench should be dug around the tree at such a distance from the body as will prevent the spade from coming in contact with the ends of the small rootlets. When at a sufficient depth the ball of earth must be carefully determined, using the edge of the spade, or, better still, a pick, and the soil as loosened thrown out of the excavation. Should there be a taproot it may be cut off as low down as possible, and the remaining earth gradually worked away, leaving the roots exposed. And now comes another very important feature in the operation, which is to keep every portion of the top and roots moist until planted in its new home. Our best cultivators spread an old carpet, or similar material, over the roots to preserve them from drying rapidly, and sprinkle freely with water.

Very little judgment is required in excavating the holes for planting; the only requirement being sufficient space to allow the roots to be placed in a natural position, and to avoid cramping or bending them in the least. Many err in the depth the holes should be dug, under the impression that a tree needs plenty of good rich soil beneath it; and as this is just where a tree does not desire nutri-

ment, the application at this point is a waste of fertilizing material, as well as of time. Roots for the most part feed near the surface, and compost, of whatsoever character, ought to be placed over the ground after the tree is planted. Therefore, as a very general rule, dig the holes no deeper than the roots extend, but as wide as you choose. Although theory is opposed to puddling the roots in thin mud, practice demonstrates the wisdom of it. By this method the small fibres are all drawn into bundles and encased in a coating of mud, through which the young rootlets penetrate easily in search of nutriment when growth begins.

In case of drought at the time of planting, this puddling system is of incalculable benefit, as it seems to retain its moisture even after the surrounding soil has become quite dry. Avoid deep planting, is another maxim to be constantly borne in mind. Many trees are actually smothered to death by burying the roots too deep. It is far preferable of the two extremes to set the tree on the surface of the ground and cover with soil than to place the roots beyond the action of the air; but a happy medium is better than either, taking as a guide the depth they were in before removal, or, if any change is made, allowing them to stand even more shallow. When filling in the soil pains should be exercised to have it finely pulverized, so that it will fill all the little interstices between the roots—a work that can never be properly performed with clods and stones. To do this correctly requires the use of the hands for pushing in the earth where no tool can penetrate.

Whenever the soil is in the least dry it should be occasionally sprinkled as the filling progresses, which materially assists the next operation, that of "firming" the soil. This is comparatively of recent introduction, but a discovery in tree-planting that has saved a great number of trees for those who have been wise enough to practice it. It is merely stamping, or, better still, pounding the soil with a "rammer," so as to make the fresh mould firm and compact around the roots, and to prevent any air passages among them. By this system every small rootlet is brought into immediate contact with the fresh earth, and consequently is induced to start into immediate growth so soon as the buds begin working, or even before.

Staking the tree is an absolute necessity to prevent swaying around by the wind. During rain-storms the surface of the ground becomes very soft, and the movement of the top of the tree creates a corresponding displacement of the roots, resulting in injury if not death. Mulching must in no case be dispensed with, as its object is to preserve the soil moist, and to prevent any extreme atmospheric changes from damaging the fibres during the struggle to regain a fair hold. Occasionally this is overdone by some enthusiasts, who unmindful of the fact that we mulch for shade only, places a great mass of decaying matter around his tree, only to inaugurate disease below. In every portion of the work good judgment should discriminate between extremes.—*Josiah Hoopes in the Tribune.*

A correspondent of the *Indiana Farmer* recommends squash as a cheap green food for stock in winter.

DRYING TOMATOES.

In Italy an extensive business is carried on in drying tomatoes to use during those portions of the year when the ripe fruit cannot be obtained. Tomatoes are raised for the most part between rows of grapevines; so that the land for their culture costs nothing. Sometimes the tomato vines are trained on the lower bars of a trellis to which grapes are attached. The tomatoes are allowed to remain on the branches till they are quite ripe, when they are picked and pressed in bags made of coarse cloth, which allows the pulp to pass through, but which retains the seeds and skins. The pulp is then thinly spread out on cloths, boards, or in shallow dishes, and exposed to the sun to dry. When it has become quite dry it is broken up fine or ground and put into boxes or bags and sent to market. A large part of it is used for making soups, but considerable of it is employed as we do tomatoes that are preserved in tin or glass cans. It is soaked for a few hours in warm water and then cooked in the ordinary manner. Large quantities are used for home consumption, and considerable is exported. This would seem to be a profitable industry to engage in in this country. There is a great prejudice against canned tomatoes, as many of them are poisonous, or at least unwholesome. The acid juice they contain unites with the solder of the tin cans and forms a compound that often causes severe sickness. The pulp of tomatoes should be dried to good advantage in any of the styles of apparatus employed for drying apples, peaches and small fruits.

AN AGRICULTURAL SCHOOL FOR GIRLS IN NORMANDY.

In a recent pamphlet by Madame Ciminio Folliero, a well-known authoress, and the editress of the *Cornelia*, a periodical devoted to the interests of Florentine women, an account is given of an agricultural school for girls, which we give in a condensed form. The Atelier Refuge of Danetel near Rouen, was established about thirty years ago as a reformatory for young girls coming out of prison, by M. Podin, formerly chaplain to the jail at Rouen, and Mlle. Marie Ernestine, official visitor of the prison of Bicetre.

One day, some thirty years ago, two little girls were discharged from the prison of Bicetre, their sentence having expired. They had no home to go to, and begged with tears to be allowed to remain in the prison. Of course it was impossible to grant their request, but the heart of Mlle. Farnestine was touched at the pitiful sight of these children and knowing well the dangers that awaited them in the streets of Rouen, determined to take charge of them. But how was she to do this? Sae had only seventeen cents in money. She took the little girls in her room, and wrote about them to M. Podin. His reply was, "Look out for a room, buy a loaf and a candle, and some straw for a bed; tomorrow God will provide." Thus a beginning was made. Year by year they received fresh inmates. Aid came from many benevolent people. A house with land adjoining and some goats were their first possession. M. Podin and Mlle. Farnestine studied agri-

culture, and were soon able to instruct their pupils.

The establishment now contains three hundred and six girls, from six to eighteen years of age. It consists of a large house, beautiful church, a school-room, an infirmary, and a garden-house, in the grounds, which are above four hundred acres in extent. This land, their main support, is cultivated entirely by young girls. They work hard, and all look healthy and happy. In the fields they dig, sow, reap, plant, mow, and prune. They guide the plow, and cart home the hay and corn. Indoors they spin, cook, wash, iron, make their own clothes, besides cheese, cider, and all country productions. In eleven days they constructed a good road a mile and a quarter long, connecting the house with the garden house. Their specialty is the care and management of cattle. They have one hundred cows, above a thousand head of poultry, some oxen, and twenty-three horses.

Notwithstanding their rough labor, the girls are neat, orderly and obedient. Their working costume consists of a short dress of coarse material, thick stockings, strong shoes, and broad-leaved straw hats, for protection against the sun. On Sunday and holidays, they wear a uniform of blue with black or white capes, and white headgear.

The excellence of their productions has been attested by several medals of the French Agricultural Society. Besides out-door employment, two hours a day are given to the school room, where they are taught reading, writing, arithmetic, singing and geography. The telegraph and telephone also are worked by the girls. The younger and more innocent are kept apart from those older in years and crime, their class-rooms and dormitories being quite separate.

When the girls have reached the age of eighteen, and their training is completed, Dardetel girls find ready situations as stewards, gardeners, dairy women, and farm managers. They are in great demand in Normandy, on account of their skill and practical ability. Each girl on leaving is provided with a small outfit, and the money she has earned herself in over hours, and should she be ill or in trouble, the "Mother's House" is ever open to her.

WHY PEOPLE TAKE MEDICINE.

It is to be feared that, to most people, medicine is not an erudite science or a learned art, but is little more than one of the commonplace administration of physic. They cannot understand medicine without drugs, and its virtue and power are popularly measured by the violence of its operations. Its very name is, in ordinary parlance, synonymous with people. Take from it its pills and potions, and for them you take away its whole art and mystery. They do not believe in a scheme of treatment, however deep-laid and skillful, which does not include a certain statutory dosage; so that, as a rule, medical men are practically compelled to give their patients a visible object of faith in some form of physic, which may be at most designed to effect some very subordinate purpose. And it is remarkable how strongly, even among the educated classes, this feeling prevails. Cure by the administration of mixtures

and balms is so fixed and ancient a tradition, that it is only very slowly that the world will give it up. The anxiety of the friends of the patient wants to do more than follow the simple directions of "nursing," which have been so carefully inculcated, and possess, apparently, so little remedial power. There is nothing of the unknown about them in which a fluttering hope of great advantage can nestle. Thus it is necessary to educate the world into a belief in medicine apart from drugs, which finds its power of curing in adaptations of the common conditions of life, and applications of physiological facts—a medicine which takes into its hands the whole life, and orders and fashions its every detail with scientific definiteness. It is found in every-day practice that this popular misunderstanding of the modern spirit of medicine constantly checks the little tentative advance of a more scientific treatment, and it is necessary that it should be generally understood how powerfully the various processes of the economy may be affected by the manipulation of the conditions of common life.

HOW TO GROW CURRANTS.

We find the following bit of horticultural experience in a pile of scraps, and cannot tell by whom it was written, nor in what paper it first appeared. It is just as valuable, however, as though we were able to give it proper credit:

When I assumed charge of our garden there was a row of old and stunted currant bushes near the fence. They were completely grass-bound. Half the bushes were dead. Each year they put out a scanty crop of leaves, blossomed feebly, and bore probably, a pint of currants to each bush—small, half-dried up things that it was more trouble to free from the worms and blasted berries than they were worth after they had been "looked over."

I determined to experiment with these neglected bushes. I took them up and cut them apart, and left attached to the roots only the youngest and healthiest growth. I left but three or four stalks to each plant. I prepared a new place for them, digging the soil up thoroughly to the depth of a foot and a half, and incorporating with it plenty of manure. I set the plants about four feet apart in the row, and the rows were about seven feet from each other. I am convinced that one reason why so many currant bushes mildew and blight is, they are set too close together. They need room to spread in, and there should be a little space between them after they have spread. If crowded the growth becomes so close and dense that dampness and impeded circulation of air induce mildew. At least, that is my theory of this disease as seen in currant bushes, and my method of planting convinces me that I am correct, for not one of my bushes, treated in the way I recommend, has ever blighted or mildewed.

After setting out the plants I took the wheelbarrow and brought from the chip-yard several loads of old, half-decayed chips. These I spread around the bushes. They decay and enrich the soil, and they also smother the grass that attempts to grow, thus answering a double purpose.

The first year my bushes grew finely. They sent up dozens of stout, healthy stalks. The most of these I pinched off. Half a dozen to a bush are enough. As soon as the new ones were a foot or two high I cut out the ones I had left when setting out the plants, so that the tops, in the fall, were an entirely new growth. They were strong and healthy, and showed what cultivation would do for neglected things. In November I threw a wagon load of coarse litter about the roots. Currants are hardy, but I think our hardest plants stand the winter enough better with some such protection to make it worth while to give it. In the spring I forked this litter in, with the old top-dressing of chips, and added more chips to take the place of those now quite rotten. That summer we had more fruit from these young bushes than the old ones had given us for years, and it was so large and fine that some of our neighbors thought we must have procured a new variety. The secret was all in the extra care I had given. They had a chance, at last, to show what they were capable of doing, and what they would do under favorable circumstances. Our currant plot was a success.

But few new ones were allowed to grow the second year. By pinching off the new shoots as they appear the bushes can be kept within bounds, and the trouble of trimming avoided. If allowed to send up new stalks each clump soon becomes a perfect mat of bushes. By pinching off the new growth the bushes are not only kept properly thinned, but the vigor of the plant is confined to only what growth is needed, and the fruit will be much larger and more plentiful than is the case where all the shoots are allowed to grow, and are not removed until the next spring. Every other year I cut out all the older growth, thus keeping my bushes young and vigorous.

We have an immense yield every year. We have all that we require for table use during the season of them, and for drying, spicing and making jelly, and often give away pails-full of them to the neighbors for the picking of them.

We are never troubled with the worms which almost always infest bushes among which the grass has been allowed to grow. During the summer we scatter feed about the plants, and the hens pick it up, and with it all grubs that may be in the soil. They are allowed to wallow among the bushes, and the loose soil makes it a favorite resort for them. Thus the ground is kept clean, and no worms effect a lodging on the bushes. Old mortar, slavings, chips or straw, can be effectively applied to the soil—anything that helps to keep it light and open. By the use of these things, and the assistance of busy hens, we have avoided the work of hoeing among our bushes to keep down weeds and grass.

FIGHTING THE CUTWORM.

How to get rid of the cutworm is an inquiry that is often made, for it is one of the most destructive enemies with which we have to contend. Saltpetre, common salt, soot and many other things have been tried, but all to no good result. Place a cutworm in a saucer of salt and he will not win. But he does not like frost. Cold kills him, and he soon yields to a cold application. What

she'd be done for his extermination is to plough early. Turn over the ground in the fall if possible, but if it is too late for fall ploughing, we must plow in the spring, as soon as the ground will permit. Plough deeply, and do not roll or harrow until the ground has had one or two freezings. If this plan does not rid the land of them, then the following fall—very late in the season—the ground should be plowed and allowed to remain till spring, when it should be plowed the cross way. One or two seasons of such treatment will kill them out effectually. There is another consideration in the matter. The frosts will assist in pulverizing the soil and adding to its fertility. A constant freezing and thawing will enable the soil to give off particles of matter for plant food that would otherwise be dormant or inert. Even without the cutworms, fall and early spring ploughing is very beneficial. The cutworm is more destructive in fields that were formerly sod than in those that have been planted to corn or sowed with wheat. When grass land is turned over early in the fall it enables its thousands of occupants (cutworms) to get down very deep, but later in the season a ploughing finds them stowed away for winter and brings them to the surface—this time, however, in a condition unfavorable to their security. After a frost the worm, if exposed, is too much under the influence of temperature to bury himself for the winter. Many of them are killed at the time. But when the fall ploughing is followed by an early spring turning of the soil they are caught by the frosts at once. It requires but a single season to clean them out of cultivated fields with this treatment, and two seasons will get them out of land that has been in grass. The practice should be continued every year, not only as a precaution against the cutworm, but also for the benefit gained by the soil from such treatment. A farmer who was once afflicted with cutworms in his soil, in his endeavor to get rid of them by this process, was afterward forced to admit that in his case the worms had taught him a lesson in compelling him to turn over his land late in the fall and early in spring, a practice he has since rigidly adhered to.—*Philadelphia Record*.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular monthly meeting of the Lancaster County Agricultural Society was held in their room on Monday afternoon, April 4th.

The following named members were present: J. C. Linville, Gap; Joseph F. Witmer, Paradise; Calvin Cooper, Bird-in-Hand; Casper Hiller, Conestoga; Daniel Sneych, city; James Wood, Little Britain; Frank R. Diffeenderfer, Dr. J. P. Wickersham, J. M. Johnston, S. P. Eby, city; H. M. Engle, Marietta; Christian L. Hunnecker, Manheim twp.

Called to Order.

In the absence of the President, H. M. Engle, of Marietta, called the meeting to order. The reading of the minutes was dispensed with. Geo. E. Wilson, city, was proposed and elected a member of the society.

J. C. Linville, chairman of the Committee on Premiums, reported the following entries for premiums on corn growing: Frank Buckwater, Owen Buckwater and Frank Hershey, all of Salisbury township.

Joseph F. Witmer, from the committee appointed to visit the State Agricultural College, reported he had not been able to attend.

Calvin Cooper, from the Committee on Farmers' Institute, said he would call this committee together and report at the next meeting.

Dr. J. P. Wickersham reported that all bills incurred by the Farmers' Institute were paid. He made a present to the society of a receipted bill for printing. He thought that much good resulted from the recent institute. Bucks county will hold a similar institute this fall; Chester will follow and he believed that in many other counties meetings of the same kind will be held. Lancaster county inaugurated the institutes and he believed the influence for good would be great.

It was moved and seconded that Dr. Wickersham be elected a life member of the society, for his untiring energy in making the institute the success it was. For contributing a receipted bill for printing, a vote of thanks was passed by the society.

It was moved and seconded and carried that the Committee on Arrangement for the institute be continued.

Crop Reports.

Calvin Cooper said the grain crop, wheat in particular, is fully up to last year in quality and better than for many years; corn is not so good; too many small stalks.

Tobacco good; fruit more perfect than for many years; no peaches in his neighborhood. In Chester county corn surpasses that of Lancaster; wheat is up to us; the crops in general are better than ours; too much manure put on tobacco ground he thought.

According to Dr. Wickersham's observation the corn crop of Chester county is always better than ours. The reason, he did not know, but in wheat they do not beat us.

Casper Hiller said corn in his neighborhood was not so good. The heavy rain worked out much. It may revive, although it is doubtful. Apples are better than for some years. The peach crop is a general failure. In his orchard he noticed something peculiar. The eastern end has no peaches; the northwestern part of the orchard will give a good crop, while the southern part will produce a fair crop. The orchard is level. He couldn't account for it.

John C. Linville reported corn not good; late corn will do the best; early corn was damaged by frost. Best crop of oats for fifteen years; wheat good; peaches a failure.

James Woods reports corn as good as last year in his neighborhood, near Quarryville not so good; hay crop not so large, but very good. He hadn't noticed any peaches on the trees; tobacco is growing nicely. He said the wheat ground that he plowed early produced one third more wheat than that which was plowed later. The early ground contains weeds; and the other oats stubble.

Joseph F. Witmer was sure the wheat crop is exceptionally good. He knew of ten acres that produced 500 bushels. The apple crop will be full; pears ordinary; tobacco doing finely, some of the crop is cut.

Dr. Wickersham, according to observation, said Chester county farmers planted the corn higher and cultivated it more than our farmers. It is their pride not to let a weed stand.

S. P. Eby noticed that in Chester county they do not scrape the corn as in this county, but cultivate it more.

John C. Linville noticed that in Chester county they used fertilizers considerably and have much sod that they plow down.

C. Cooper told of a farm, near Georgetown, in Bart, that was renovated by an extensive use of pure ground bone. He used 300 pounds of bone to the acre for corn, for oats 200 pounds. The bone is worth \$35 per ton.

Dr. Wickersham said it would pay the society to visit the farm of S. S. Spencer, near this city. It is well drained, well cultivated, and is good in every particular.

H. M. Engle reported the wheat good and the straw correspondingly nice. He noticed this to be the condition always. Peaches all dropped off.

The Robin Must Go.

S. P. Eby read an essay on "A Step in the Right Direction." The destruction of insectivorous birds is one cause for poor fruit crops. They need protection. The strutting boy through orchards and over fields is a factor in driving away or destroying the birds. The English sparrow should be driven off.

Mr. Henry M. Engle theoretically endorsed the view of Mr. Eby, but practically he would not. It is impossible to save cherries and strawberries from the birds. We never get a full crop of cherries. We have just as many apples, plums, etc., but the fruit that birds like is always short.

Calvin Cooper agreed with Mr. Engle. The only fruit he was able to harvest was that which he stole from the birds. He is willing to petition the Legislature for a repeal of the law which protects the birds. They are of no good.

S. P. Eby enumerated a number of trees whose branches have been cut off as mechanically as a carpenter could do it. He protects the birds, and he is free from the ravages of grasshoppers and insects. It is his experience that the birds are of much value to the fruit. He always gives encouragement to the birds. What fruit they eat they give welcome to.

F. R. Diffeenderfer in all his observations never saw a robin destroy any other kind of worm but an angle worm. He gave the robin a very bad reputation.

J. M. Johnston said upon the authority of the editor of the Germantown Telegraph, that the robin eats no other animal except the angle worm. They should be exterminated.

As a last plea for the robin Mr. Eby made an eloquent address for its protection on the strength of its music. The sweet song of this bird was worth all the fruits destroyed.

About Fertilizers.

Calvin Cooper suggested that an organization for the purchase of fertilizers would be beneficial to the farmers.

Dr. Wickersham spoke of organizations that have been formed. They would certainly be of good.

Mr. Engle thought it would be well to buy ingredients and for the society to mix them themselves. He suggested that it be announced that the society take orders for the purchase of fertilizers.

Mr. Woods thought it would be best for a few to do the purchasing and many the selling.

Adjourned.

Fruit Exhibits.

Calvin Cooper brought to the society several specimens of fine pears. Daniel Sneych had specimens of peaches and pears.

HORTICULTURE.

SEEDS buried too deeply in the soil may not germinate for lack of oxygen; or, if germination takes place, the plumule may fall to reach the surface, the store of food in the seed being exhausted before the layer of soil is penetrated and daylight reached. Hence, the smaller the seed the less, as a rule, should be the depth of earth with which it is covered.

A Big Water Melon Patch.

On a farm near Eufaula, Ala., there is a water-melon patch which covers 150 acres, the product which averages one thousand marketable melons to the acre, and the prices realized averaged \$100 per acre. It requires from five to ten freight cars per day in season to move the crop. The proprietor would make "big money" if he didn't sell a melon, but merely sell the seeds from them. It requires 150 pounds of seed to plant his own crop. A twenty pound melon will produce one pound of seeds, and they are worth at wholesale from one to two dollars a pound. One seedsman desired to place an order for one ton of seeds.

A Large Truck Farm.

What is claimed to be the largest truck farm in the South is in Louisiana, near New Orleans, where the cultivation of very early cabbages, cucumbers and tomatoes are made a specialty for the markets of Northern cities. Last season the yield was about 900 barrels of cucumbers, 8,000 boxes of tomatoes and 170,000 heads of cabbages. In addition to this a considerable portion of the ground is devoted to the cultivation of strawberries, cauliflower, peaches, grapes, etc., and an spiny yild an annual production of about ten barrels of honey.

Kill the Weeds Before Planting Seeds.

Where there are weed seeds lurking in the soil harrow over the surface lightly to cause them to germinate. Do this once a week for two or three weeks while your manure is composting. Better spend an hour a week, for three weeks, to kill weeds, than to depend on killing them after the plants come up and the weeds with them. One hour spent before the seeds are in and the ground warm will save one day when the weeds and plants come up together. Weeds are the main discouragements to gardening among farmers. Kill the weeds before you put in the seeds this year.

A Timely Suggestion.

A recent number of the *Mirror and Farmer* published an article under the title of "Land Improvement," from the pen of Prof. Saurborn, of the New Hampshire Agricultural College, from which we extract a paragraph of interest to owners of low, wet land: "I received seventy-five bushels shelled corn per acre on the college farm, from ground never planted to corn because flat and wet, by beginning in the centre of three and one-half rod beds, as marked out, and plowing so as to turn the furrows on either side of the centre towards each other. This makes the ground in the centre of the bed higher, leaving at the outside of each bed a dead furrow to take off the water. For removing surface water on level ground they have been more effectual with than drain tile would have been. The field is left in poorer condition for tools than after tile drains, but after harrowing down I have not found them in practice very troublesome. When the ground is very wet they should be made narrower. In Canada I have seen them not more than a rod or a rod and a half on their low-lying lands that stretch away for miles. These drains are advised for surface, not spring water from below."

Cabbage Fleas.

Every one who tries to grow cabbage plants, and probably nine-tenths of the readers of the *FARMER* do this, will be interested in the following reply given by the *Country Gentleman* to a Washington correspondent who asks for a remedy against the little hoppers that infest the beds and sap the life from the leaves of the young plants: "A 'perfect remedy' cannot be given, because different species of insects infest plants, and a remedy which may answer well in one locality, and under certain circumstances or in one season, may not succeed in others. Among the remedies which have proved effectual in most cases are, dusting with powdered lime, syringing with a strong infusion of tobacco stems, dusting with powdered tobacco (obtained from the sweepings of tobacco houses), and, perhaps the best of all, syringing with water strongly impregnated with coal tar, made by repeatedly stirring the tar in ten times as much water. Kerosene in water has also been used with good success in some instances. Several other remedies might be named, but none better than the above. Dusting the ground with lime while the plants are very small, is a good preventive, and stirring the ground by cultivating frequently, and producing vigorous growth, lessens the damage committed."

Notes from a Suburban Lawn.

No shrub excels the *Deutzia crenata* in natural grace, if left to itself. By close pruning every year it can be made to produce flowers in greater abun-

dance, but this floral wealth is gained at the expense of certain fire and wayward sweep of outline, which is its peculiar charm. Occasional thinning out of the shoots—not cutting them all in—encourages its natural habits, and well grown shrubs, with long branches drooping under their load of bloom, are now among the fairest ornaments of my lawn. Thomas Hoeg, to whom we are indebted for so many introductions of trees, shrubs and vines from Japan, once said in my hearing that he considered the double pink *Deutzia* the most desirable shrub of all those he had seen from the East. The *Deutzia gracilis* passed out of flower long ago, and when not in bloom the shrub has little to commend it. It has an unpleasant way of showing dead branches in the spring, and a stiff habit of growth which is not pleasant. The delicacy of its early flowers, however, atones for other shortcomings, and gives it an honored place among dwarf shrubs. There is a variety of *Deutzia* known as *parviflora*, which for some reason is rarely seen. Its habit is rather more upright than that of *D. crenata*. It blooms profusely, and a little earlier than its better known relative. It is a shrub which deserves to be more liberally planted.

HOUSEHOLD RECIPES.

BEEF TEA.—For very weak patients, when even weak meat broths are thought to be too strong, what is called beef tea is often made use of. This article is greatly overrated as an article of diet or sustenance, as it can possess but very little nutriment, and the patient must be very feeble indeed that cannot bear something stronger. It is made as follows: Take one-half pound of lean fresh beef, cut in thin slices, put into a small vessel or bowl, pour over one pint of boiling water, and let it stand half an hour by the fire to steep, but not to boil; then pour off, squeeze out the juice from the meat a little, season with salt, and give this "tea" or liquid to the patient. It should be taken moderately warm.

CHICKEN PANADA.—Boil a young grown chicken until nearly done, in about two quarts of water; then take out, remove skin from the breast, and when cool enough cut off the breast, or white meat; cut in small slices, put into a mortar or other strong vessel, and with a pestle or piece of hard wood, properly prepared, pound and mash to a paste, adding a little of the broth in which it was boiled. Season properly with salt. Then boil to the consistency you wish, by adding sufficiently of water—boiling slow for a few minutes. It should be as thin as gruel. Toasted bread may be given with it.

CHICKEN BROTH.—This may be made best by taking a rather old chicken, and boiling it down to shreds, seasoning with salt; keep this by adding water, and when done, skim and strain. It can be placed away in a suitable vessel of stone, to be used from daily in such quantities as the patient may require, by taking a little and warming it, and, if need be, thinning it, and, perhaps, adding other ingredients, as toasted bread, boiled rice, and the like.

NUTRITIOUS JELLY.—Take two ounces each of rice, pearl barley and sage, boil slowly in three quarts of water, down to about one quart; take a teaspoonful in a little milk, warmed, morning, noon and night.

IRISH MOSS JELLY.—Let the moss stand in water a little while, then wash it through two waters. To one ounce of moss use two quarts of water and a little cinnamon bark; boil to a thick jelly, and then strain and season to the taste with wine and white sugar.

WINE WHEY.—Take one quart of new milk, half as much water, put them in a saucpan, place over a fire, and when they begin to boil add one-half pint of sour wine; boil slowly about fifteen minutes, during which time, as the curd and cheese part collects, take it off with a spoon, and when the whole of the curd is thus removed pour the whey into a vessel, and it is ready for use. Good for very weak persons.

TO MULL PORT WINE.—Boil a little alcohol in one pint of water, to get the proper flavor; then add an equal quantity of port wine, a little sugar, and boil together a few minutes, and serve any way preferred.

REFRESHING DRINK IN FEVERS.—Take four ounces of tamarind, four ounces of raisins, and boil in about three quarts of water, slowly, for fifteen or twenty minutes, or until the water is reduced near one-fourth; then strain, while hot, in a vessel with a little lemon-juice in it. When cool use as a drink.

GRAHAM BREAD.—Wet the graham flour with lukewarm water, and use yeast and salt as for wheat bread. Knead in flour to make stiff; let stand from one to two hours till risen, and then bake.

MUTTON BROTH.—To one pound of lean mutton, use one quart of water, and a little salt, with a few crusts of bread; boil slowly for a couple of hours; then skim off the oily matter carefully before using.

CALF'S FEET BROTH.—Take two calf's feet, well dressed, split open and cut off all the fat, add about one-fourth pound of lean meat, veal or beef, half a pint of water, three or four carrots, slowly, and for several hours, down to about three pints. In the mean time, add to it a piece of wheat bread crust and salt. When it has boiled to a jelly let stand, skim and strain, when it is ready for use.

TO MAKE GRUELS.—The most common gruel is made of cornmeal and water, with a little ale. Take two tablespoonfuls of sifted meal, stir it into one teacup of cold water, then put it into a saucpan with one and a half pints of boiling water, and boil slowly for half an hour. To be eaten with milk and sugar.

OATMEAL GRUEL.—Made the same as cornmeal.

BARLEY GRUEL.—Boil four ounces of pearl barley, or one teacup in three cups of water; boil it down to one quart. Strain and return to saucpan; grate into it a little cinnamon, if you like, and sweeten; add from one-half to three-fourths pints of fresh milk; warm up, and use as wanted.

FLOUR GRUEL.—Take one tablespoon of flour and stir it smoothly with one cup of cold water; mix it thoroughly so there will be no lumps. Let one pint of fresh milk come to a boil, then stir in the flour and water, add sufficient sugar to sweeten, and stir about fifteen minutes.

BOILED FLOUR.—For young children who are suffering with looseness of the bowels no better food can be given than is made as follows: Tie securely, in coarse muslin, two teacups of wheat flour, and boil for eight or ten hours; take off the cloth and crust formed over the flour, grate the inner portion as needed into boiling milk, to the consistency of thin starch, and sweeten with white sugar.

BELLADONA ANODYNE OINTMENT.—Mix three drachms fresh extract of belladonna, $\frac{1}{2}$ drachm powdered opium, and 3 drachms lard. For neuralgia, &c., apply with friction for 6 to 8 minutes.

SULPHUR OINTMENT.—Mix together 1 ounce sublimed sulphur and 2 ounces lard.

SLIPPERY ELM POUCE.—Take a sufficient quantity of pulverized slippery elm bark; stir it in hot or warm milk and water, to the consistency of a poultice. This will remove inflammation sooner than any other. If the tincture of myrrh be added it is valuable in boils, ulcers, carbuncles, &c.

MUSTARD POUCE.—Mix the best English ground mustard with strong vinegar; spread it on a piece of book or tartan muslin, to prevent its adhesion to the skin. Wet the part first with vinegar, and apply the poultice.

POULTICE FOR STRAINS AND BRUISES.—Carbonic ammonia, 2 ounces; vinegar, 2 pints; proof spirits, 3 pints. Mix the ammonia and vinegar; when the effervescence ceases, add the spirit. For inflammation of the joints, of some standing, mix with arrow-root meal, and use as a poultice twice a day. It is also valuable for sprains, bruises and other injuries.

CARBOLEIC ACID GARGLE.—Used as a gargle for

score the at, attended with foul breath. Take 2 grains of the crystals to 1 ounce of water.

GARGLE FOR ULCERATED SORE THROAT.—Water $\frac{1}{2}$ pint; decoction of Peruvian bark $\frac{1}{2}$ pint; sulphate of zinc, 1 drachm. Mix.

ORANGE TONIC.—Orange peel, 1 ounce; chamomile flowers, $\frac{1}{4}$ ounces, and a little ginger. Put in 1 pint of boiling water. Add $\frac{1}{2}$ a wineglassful of brandy. Take a wineglassful at a time.

BALM TEA.—Balm leaves, 1 ounce; fine sugar, 1 spoonful; lemon juice, 1 ounce; infused in a pint of boiling water for 20 minutes. This forms a useful drink in colds or fevers. Or it may be made just like the common tea, without the lemon. Let the patient drink it frequently, especially the last thing at night, and keep himself warm during the perspiration.

INFUSION TO PROMOTE SWEATING.—Infuse 1 ounce of pleuris root for 30 minutes in $\frac{1}{2}$ pints water. A teaspoonful taken warm as often as the stomach will bear it.

DANDELION ALTERNATIVE.—Especially useful in cases where the function of the liver is at fault. Dose, fluid extract of dandelion, a dessertspoonful, twice daily, with or without a little water.

ATLEE'S NIPPLE WASH.— $\frac{1}{2}$ drachm powdered gum arabic, 10 grains borate of soda, and 1 drachm tincture of myrrh.

BEACH'S REMEDY FOR ULCERS.—Take sweet clover tops and stalks, burdock leaves, and parsley, a handful of each; get the strength out by boiling; strain, and add 1 pound of resin and $\frac{1}{2}$ pound of fresh butter; simmer until of a proper consistence. A cold water cloth constantly applied is a good remedy. Put a little cerate on the ulcer previously. Attend to the general health by cleansing the stomach and bowels, and then giving tonics.

TO MEND CROCKERY WARE.—Take enough of the white of an egg to mend one piece. Shave off a quantity of lime sufficient to make a paste, mix thoroughly and apply quickly to the edges, placing them firmly together. It will very soon become set and strong. Mix but a small quantity at once as it hardens very soon and cannot then be used. Calcined Plaster of Paris will answer the same purpose. This is one of the strongest as well as most easily applied cements.

FINE PASTE.—A solution of 2 $\frac{1}{2}$ ounces gum arabic in 2 quarts warm water is thickened to a paste with wheat flour. Add a solution of $\frac{1}{2}$ ounces each of alum and sugar in water. Heat the mixture, stir it about until it boils, then cool it. It may be thinned if necessary with a gum solution.

STRONG GLUE.—Dissolve an ounce of the best isinglass, by the application of a moderate heat, in a pint of water. Strain through a cloth, and add to it a proportionate quantity of the best glue, which has been previously soaked in water for 24 hours, and a gill of vinegar. After the materials have been brought into a solution, let it once boil up, and strain off the impurities.

MAGIC LINIMENT.—Alcohol, 1 quart; gum camphor, 4 ounces; turpentine, 2 ounces; oil of argemone, 2 ounces; sweet oil, 1 ounce. For cuts or calks in horses or cattle in winter it has no equal; but it must be applied often. For human flesh use twice the amount of alcohol, and no incision will be found superior to it.

ITCH OINTMENT.—Washed sulphur, 1 $\frac{1}{2}$ ounces; chloride of lime, 2 drachms; hog's lard, 4 ounces. Mix and make into an ointment.

EMETIC.—Half a glass of water, one heaping teaspoonful of salt and another of mustard.

CARBUNCLE.—A carbuncle is a species of boil, but larger, and much more painful; it shows debility in the constitution. Carbuncles are very dangerous and medical aid should be obtained at once.

TO STOP BLEEDING.—In all wounds the blood flows either regularly or by jets and spurts. If it flows regularly a vein has been wounded, and a string should be bound tightly around beyond the wound

from the heart. If the blood comes by leaps or jets an artery has been severed, and the person may be dead to death in a few minutes, immediately apply a cord between the wound and heart, drawing tight. If a string or cord is not at hand tie the opposite corners of a handkerchief around the limb, put a stick between and turn it round until the handkerchief is twisted sufficiently to stop the bleeding. This application is called a tourniquet, it must be kept on until a physician can be had.

MURKIN.—This is a specific contagious inflammatory affection of the salivary glands, especially the largest, situated below the ear. It begins with slight febrile symptoms, with pain and swelling, extending from beneath the ear along the neck to the chin. The attack generally reaches its height in four days and then declines. The treatment is very simple, a mild diet, gentle laxatives, occasional hot fomentations, and wearing a piece of flannel around the throat.

CURE FOR NEURALGIA.—Apply a blister of Spanish flies, let it remain until it draws the skin red (no longer); remove and apply a morphia powder.

QUINSEY.—Keep the patient in a warm room, the diet being chiefly milk and good broths. Some cooling laxative and diaphoretic medicine, such as gruel, tea, or barley water may be given. But the greatest relief will be found in the frequent inhalation of the steam of hot water through an inhaler, or in the old fashioned way through the spout of a teapot. The following treatment will frequently give great relief; roast three or four large onions, peel them quickly, and heat them flat with a rolling pin. Immediately place them in a thin muslin bag that will reach from ear to ear, in a layer about three inches deep. Apply it speedily as warm as possible, keep it on day and night, changing when the strength of the onions appears to be exhausted. Flannel must be worn around the neck after the poultice has been removed.

ATLEE'S CURE FOR WHOOPING COUGH.—Mix 1 drachm each powdered cochineal, and strong aqua ammonia, and 1 ounce rectified spirits of wine. Dose for a child 1 year old, 10 drops in sweetened water three times a day.

REMEDY FOR WORMS.—Mix 1 $\frac{1}{2}$ fluid drachms, oil of worm seed, 3 ounces castor oil, 10 drops oil of anise; add 1 fluid ounce of aromatic syrup of rhubarb; shake well before using. Dose for a child of 2 years, 1 teaspoonful night and morning.

DIARRHEA IN INFANTS.—Tincture of opium, 8 minims; castor oil, 1 drachm; syrup of ginger, and mullage of acacia, each 1 ounce. Dose, a teaspoonful three times a day, if the bowels are loose, with dark slimy offensive stools.

SIMPLE REMEDY FOR DYSENTERY.—Mix 1 gill of hot water, and $\frac{1}{2}$ pint of vinegar; add common salt as long as it will be dissolved, stirring it freely and frequently. Dose for an adult 1 tablespoonful every hour until the bloody discharges cease, or until it operates freely on the bowels. The patient must remain in bed. This simple remedy has been known to cure the most obstinate and malignant cases.

FITS.—If a person falls in a fit, let him remain on the ground, provided his face be pale; for should it be fainting or temporary suspension of the heart's action, you may cause death by raising him upright, or by bleeding. If the face be red or dark colored, raise him on his seat, throw cold water on his head immediately, and send for a physician, and get a vein opened, or fatal pressure on the brain may ensue.

SICK HEADACHE.—It is stated that 2 teaspoonfuls of finely powdered charcoal, drank in half a tumbler of water, will give immediate relief to the sick headache, when caused, as in most cases it is, by too much acid on the stomach. This remedy has been highly recommended.

EXTERNAL REMEDY FOR PILES.—Boil some of the inner bark of white oak in water and strain; evaporate to a thick extract. To $\frac{1}{2}$ pint of this extract, add $\frac{1}{2}$ pint of oil rendered from old, strong bacon. Simmer together till mixed, and let it cool. Apply

with the finger inside the rectum every night until cured.

REMEDY FOR SUPPRESSED MENSTRUATION.—Make into 12 pills, 12 grains sulphate of iron, 6 grains powdered aloes, and 12 grains white turpentine. Dose, 1 or 2 bed time.

FINE SMELLING SALTS.—Take of carbonate of ammonia (crushed small), 1 pound avoirdupois; oil of lavender (Mitscham), 1 ounce bergamot, of each 1 Imperial fluid ounce; oil of cloves, 2 fluid drachms, oil of cassia, 1 fluid drachm. Rub them thoroughly together; sublime at a very gentle heat into a well cooled receiver, and at once put into a well-stopped bottle or bottles.

EMAMEL POWDER.—Mix equal parts of finely scraped talc or French chalk, and pearl white, and sufficient rouge or carmine to slightly tinge it. Used to conceal discolorations, and without the coloring, to whiten the skin.

COLD CREAM.—Take 1 ounce avoirdupois each of spermaceti and pure white wax, and $\frac{1}{2}$ Imperial pint oil of almonds, melt, and then pour the mixture into a marble or porcelain basin, which has been heated by being placed for some time in boiling water; add, very gradually, 4 fluid ounces of rose water; and stir the mixture until an emulsion is formed, and afterwards until the whole is nearly cold, then place it in porcelain or earthenware pots.

ROSE GLYCERINE CREAM.— $\frac{1}{2}$ ounce spermaceti; 2 ounces oil of sweet almonds; 1 ounce white wax; 4 ounces glycerine; mix the spermaceti, white wax, and oil of almonds together first; then add the glycerine and stir until cool. Perfume with attar of rose.

TO REMOVE FRECKLES.—Dissolve 3 grains of borax in 5 drachms each of rose water, and orange flower water; a very good remedy is equal parts of pure glycerine and rose water, applied every night and allowed to run.

LIVE STOCK.

How to Milk.

A milker should learn to milk quickly. Slow milking will ruin any cow, and there is little doubt that many cows are made unprofitable by bad milking. As soon as the flow of milk begins it should be drawn as rapidly as possible. Stripping with the finger and thumb is a bad practice, and should be unlearned at once, and the whole hand used to milk with. By persevering one will soon be able to milk very short teats if the hand is moderately small. The best milkers have small hands; strength of wrist will come in time.

Fallacy of Milk Escutcheons in Cows.

Some cows which do not show anything like so large and well defined an escutcheon as the sticklers for these say is necessary prove to be great in the dairy. A recent writer on this subject tells us that on examination of some half a dozen or more cows which had made their twenty pounds or over of butter per week, he finds no first-class escutcheon, or scarcely a second or third, marked upon them. For our own part we have never had much faith in them, because it is so difficult to ascertain what an escutcheon really is, as a very few seem to be agreed as to its width, length and other parts which it displays on the body. In selecting a good dairy cow for ourselves, in doing so properly we pay attention almost entirely to the shape of her body, the size and form of the bag when full, and also empty, together with the size and zig-zag of the milk veins.—A. B. Allen.

Kindness Profitable.

Some people dare not attempt to handle their sows. This is their own fault. They get into the pen, when they must, armed with a club or a shovel. Such pens are seldom cleaned, and the pigs which are forced to lie in them must needs be filthy. This is not the way to bring up pigs. A

pig is a very easy animal to educate. Like people, whom they more closely resemble than any other animal in some respects, their education must begin when they are very young. If they are brought up in the way they should go, the trainings should begin when they are sucklings, by picking them out and stroking them gently. If the owner's enthusiasm and interest in them should be so great as to cause him to carry them to the house to show to the children and to let them play with them, all the better. The pigs should be handled and taught not to be afraid. When this is done the mothers will be docile and much more easily managed.—*Rural New Yorker.*

Advice to Young Horsemen.

Never pass behind a horse in the stable nor place your hand upon him in the stall without first speaking to him. You may save life or limb by hearkening to this in mind. Do not whip even a "contrary" or balky horse; make him forget his ill or stubborn intent in some way, such as putting a little dirt in his mouth, or wrapping a salter of newspaper about one or both ears; in studying to know what it means he soon forgets his notion of stopping, and at the prompt, and at the prompt, decided, but not angry, voice of his master he moves along. In case of any accident, do not shout or appear frightened; your excitement will at once be communicated to the horse. Instead, you should pacify and reassure him with firm, kind tones.

Form a habit of glancing all over your horse and harness before starting from the door. It may save life. In the winter be sure and have the bits covered with cloth or leather. On the road you go pretty fast down hill and on level ground, if you are a good driver, but don't hurry up hill; never do so with a load; short pulls and rests by "irrigating the wheels" will prolong the service of your horse.—*The Cultivator.*

The Largest Yields on Record.

As the Jerseys are noted for their large yields of butter so are the Holsteins famous for their extraordinary production of milk. The highest records obtained are those of the two Holstein heifers belonging to Mr. John Mitchell, of Meadow Brook Farm, near Newburg, N. Y., for one of which \$15,000 has been refused. Previous to the test of these heifers the highest yield of milk was by a 3 year old, Clothide, belonging to Smith & Powell, Syracuse, N. Y. which was 64 pounds per day (about 32 quarts). One of the above heifers, Jamaica, according to the New York *Tribune*, has given in one day 103½ pounds of milk, or about 51½ quarts. The other heifer, Ethelka, has given 80½ pounds. The milk from Jamaica produced, in one week's trial, over 25 pounds of butter, which is also a remarkable record. It is seldom that cows excel both in the quantity of milk and butter, and the records of these heifers demonstrate that the Holsteins are destined to be the most useful of all breeds of cattle; for, in connection with their merits for their dairy purposes, they are very large in size, and make excellent animals for beef, while the oxen of that breed are active, strong and capable of doing efficient service.

Feeding Colts.

Early maturity for swine and cattle has been advised as to the best farm practice for the largest return in pork and beef. But there is a difference, as the *Home Farm* reminds us, between the objects in view in raising pigs and horses. In the one case weight alone is wanted, and fat-forming foods (the chief of which is corn) are used. In the other it is muscle that is wanted, and about the poorest food that can be given a young colt is corn. Of course you can, with corn, shove it forward and make astonishing weights and possibly sell at a big price; but let this practice become universal, as it threatens to be, and the people who use horses will soon suffer your stock at any price. Cattle and hogs are bought for fat, horses for muscle. The difference is as wide as it can possibly be.

There must be different feed and different treatment. What the colt wants is plenty of exercise, a clean place to sleep, shelter from the bitter storms, plenty of good grass of different varieties, good, clean hay without dust, and good, sound oats. Colts raised in this way will not look so well nor win as many premiums, nor sell so good for as much money, but they will have sound limbs and eyes, great endurance and weight, speed enough for their various purposes, and they will last.

June Butter.

The delicious flavors and appetizing aroma of June butter come from the fresh, sweet grasses on which the cows are feeding, untaunted by foul odors or filthy surroundings. While these flavors, as developed in June butter, cannot be improved or intensified in an artificial way, yet it is an easy matter to detract from them by errors in management. One of the more common errors is to allow the cream to remain on the milk after it begins to sour. This is more frequently practiced in the warmer weather of June than during the cooler weather of the spring months. First-class butter cannot be made from cream which has been taken from sour and coagulated milk. The highest development of flavor is found when the cream has arrived at that stage when it first begins to put on an acid condition. If the acid is allowed to develop further the flavor will be impaired and the butter will be of inferior quality. The only way to secure these conditions is to remove the cream before the milk sours, and then ripen it to the desired condition. The milk should be set under a temperature where it will remain sweet till the cream has time to rise. In successful dairying of any kind, and especially in butter making, the temperature of the milk must be under control. Only in this way can choice June butter be made.—*Maine Farmer.*

Overstocking Pastures.

The *Breeders' Gazette* in commenting upon this practice has reference mainly to the beef producing sections in the West, but dairymen have the same temptation and need the same counsel.

The profits from cattle at grass are so manifest—the money coming without the farmer scarcely realizing where it comes from or how it is made—that there is a constant temptation to overstock the pastures. And considering the variability of the seasons, which alter the sustaining or producing capacity of the grass lands from one year to another, there is perhaps no other problem connected with the management of the farm than the proper adjustment of the number of live stock to the proportion of pasture lands. The number should, of course, be large enough to consume the grass; but it should at no time be large enough to render the grass short and the gathering of sufficient feed difficult. This condition is bad for the stock, and equally bad for the crop. Pastured too closely, it is doubtful whether the grass will produce as much, considering the dry season of the year, and more or less of it is thereby weakened or killed out, so that the permanent stand and yield is impaired. Then, if too short for their convenience, cattle will only be able able to gather enough to satisfy what they appreciate to be the necessities of the situation, and will make no satisfactory gain. The best plan is to provide just about such a number as can be kept with the most advantage in seasons a little poorer than the average, and to take the chances on picking up a few extra bullocks in seasons of unusual productiveness.

Lice on Stock.

A number of letters asked for remedies for lousy stock. Vermin of some kind very frequently infest domestic animals; they are mostly 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 proven a good vermicide. A mixture of carbolic acid and soft soap in the proportion of one to four, makes a compound easy to apply, and very effective. 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 effective 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 on the system.—*American Agriculturist.*

Interfering Horses.

Many horses are in the habit of striking with one leg against another; and much of inequity has been exercised to provide a remedy for the troublesome practice. Both the fore and hind legs are subject to it, the latter, perhaps most frequently; but in them it is confined to the fetlock joint, whereas in the fore legs, the horse may either hit the fetlock, the leg just above the pastern, or just under the knee, where it is called a spursy cut, from its occurring chiefly in fast action.

It is desirable, before applying a remedy to ascertain, if possible, the cause and the part which strikes; whether the shoe or the foot, and, if the latter, what part of it. Many horses strike from weakness, and cease to do so when they gain strength and condition. This is more particularly the case with young horses; others cut from a faulty conformation of the limbs, which are sometimes too close to each other; again the toe is turned too much out or in. When turned in, the strike is usually just under the knee.

The objects to be kept in view in shoeing such horses must be to remedy the faulty action, and to remove, if possible, the part which strikes, which is generally that portion of the foot between the toe and the inside quarter—sometimes the inside quarter itself, but very rarely the heels of the shoe. If the horse turns his toe in, in all probability he wears the inside of the shoe most; if so, it should be made much thicker than the outside; if the contrary, the outside heel should be the thicker. The shoe should be leveled off on the inside quarter, which should also be free from nails.

In the hind legs we often find a three-quarters shoe will prevent striking, when other plans fail, for here the striking part is not so far forward as in the fore legs, so that the removal of the iron altogether from the inside quarter will often accomplish the aim. It sometimes happens that no plan will prevent interfering, and then the only recourse is the boot or the pad.—*Indiana Farmer.*

POULTRY.

Fowls Must Have Green Stuff.

It must not be forgotten that our poultry need some sort of green food at all seasons of the year.

In winter we can give them cabbages or chopped turnips and onions from time to time; short, lathery hay (or straw) is very good for a change; corn-stalk leaves chopped fine, they will eat with a relish.

In early spring-time, when the ground first opens from the frost, pasture sods thrown into their pens will be ravenously eaten by them; and as soon as the new grass starts (unless they can have free access to the fields or lawns) they should be supplied with this excellent succulent daily. For the young chickens nothing is so beneficial and so grateful as a run upon the newly grown grass; and next to this indulgence they should have an ample supply of cut or pulled grass every day.

But of course while Jack Frost haws away "this sort of truck" is out of the question. Some careful poultry keepers sprout oats in boxes of earth, and allow choice birds to pick the tender blades. The common Swedish turnip and the carrot are excellent for winter green poultry feed, and probably the most available and the cheapest vegetables that

can be procured. If the fowls do not "tackle kindly" to the same, when offered in a raw state, cook and mash, and mix with bran and meal.—*Poultry World*.

How to Pluck Poultry.

Journal of Agriculture: I have known persons on market day to go out and kill twelve or fifteen fowls, and to bring them into a room where there would be half a dozen women and boys pulling a few feathers at a time, between the thumb and forefinger, to prevent tearing them. Now for the benefit of such I will give our plan: Hang the fowl by the feet by a small cord; then, with a small knife, give one cut across the upper jaw, opposite the corners of the mouth; after the blood has stopped running a stream, place the point of the knife in the groove in the upper part of the mouth, run the blade up into the back part of the head, which will cause a twitching of the muscles. Now is your time, for every feather yields as if by magic, and there is no danger of tearing the most tender chick. Before he attempts to flap you can have him as bare as the day he came out of the egg.

Eggs vs. Eggs

It is a noticeable fact that while white shelled eggs are much sought for in the New York markets, in Boston the colored shelled will sell for from five to seven cents more a dozen.

We are quite positive we can detect Brahma eggs from those of the Leghorn, Hamburg, Game and French hens. Certainly, if used for custards, five Brahma eggs are equal to seven Hamburg or Leghorn eggs. And the Brahma egg, dropped in water, comes out in a compact form; either of the other kinds, having a more watery white, will spread out and present, to the Boston taste, a less inviting appearance; and is, at the same time, lacking in that rich flavor peculiar to the Brahma egg. The latter is, on the other hand, in New York, considered strong and coarse. There, preference is given to the more delicate and less heavy white shelled varieties. But the eggs of any hen that has not free access to growing grass will be wanting in color if she is not supplied with cover-tops. Clover hay will be greedily devoured, or the tops can be softened with hot water and given in the cooked food.

Building Material.

The question, which material is best for building poultry houses, depends so much on circumstances that it is impossible to give any definite reply, for the man of means may consider that brick, stone and hard wood is best, while the man in close circumstances will naturally consider common pine lumber preferable, considering the smallness of his purse.

As in most cases poultry houses are temporary structures, comparatively speaking, it is best ordinarily not to build of other than wood, and this does not in the least prevent the expenditure of an almost endless amount of cash and labor on ornamentation, if thought desirable or advisable, or the pocket-book will admit of it. As a rule, brick or stone poultry houses, besides being more expensive than wooden structures, are also very liable to be damp, and dampness engenders quite a formidable array of ailments and disorders, which go far toward making the profits of poultry breeding at least very uncertain and problematical. They can be built so as to avoid this dampness, at a great measure, but as the dampness is due more to the want of care and attention afterward, in regard to ventilation, the case is not materially affected.

All wooden poultry structures, most of which, while they may not be very elaborate when finished, can be built by almost any one who has fair mechanical abilities, are vastly improved in their lasting qualities by keeping the surface covered from the air and sun by the application of paint, or some similar preservative, to the boards. Some use tar; but this, while it preserves, from decay, makes the house too somber looking. Cheap paint, made for

outside work, is the best, while lime, in the form of whitewash, is now frequently used, as it gives everything a bright and cheerful appearance, and some claim that by soaking into the wood it greatly improves the durability of the boards. The insect enemies of poultry, too, are not friendly to lime in any form.

Common, unplanned boards make a very good, cheap house, with hemlock studding, bracing, etc., but if it is desired to have a smoother finish, planned boards (planned on one or both sides) can be used. If you have plenty of time and but little spare cash plane them yourself, and have plenty of shavings wherewith to kindle fires; but when the cash is plenty it pays better to buy the boards already planned by machinery.—*Poultry World*.

Food for Young Chickens.

We do not think that we can be mistaken in the belief that we should be far more successful in the raising of young chickens by giving them a great deal more animal food than we are in the practice of doing. The feeding of corn meal mush, boiled potatoes, and similar substances generally compose, as we all know, the principal food of young chickens; but we can see no reason why these young birds should be exceptions to the ordinary rule of young birds in general which feed very largely, indeed chiefly, on animal food even those which, when they are mature, live mostly on fruits and seeds, are fed when in their nests on worms, grubs and insects. We notice the old birds all day long busily engaged in supplying their young with food, but always with animal food. In fact, it is very rare that we have seen anything else. Why, then, should chicks be an exception? The recommendation, almost without exception, in our poultry publications, is to give more animal food to our grown fowls if we expect them to give us more eggs, especially in winter, when they can help themselves to none. That is a great inducement to make them lay more generally, we have too many proofs to admit of any doubt. Besides, it is claimed that animal food has other advantages in the way of good health, etc. Why, then, let us ask again, should the young chickens not be benefited with at least a moderate supply of animal food? All chickens raised on the great losses always suffered in the growth of them, and may it not be owing to a large extent to the withholding of this strengthening food, which is of so much benefit to the matured bird? We, therefore, suggest to our farmers to change their method of feeding their young chickens by giving a due proportion of animal food, chopped up in very small pieces, and thus find out, each one for himself, whether it is not a very desirable course. It will mature an additional number of the chicks into strong, healthy fowls.

Will A Hen Lay Two Eggs A Day.

That they will under certain circumstances is a fact. We know of six hens that produced ten eggs in twenty-four hours—one with a double yolk; seven in twenty-four hours, and one with three. But the average product under all circumstances and for all breeds, is not beyond 128 to 132 eggs in a year.

THREE hundred and one eggs have been produced by a single Leghorn hen in a year. A little boy has seen her lay twice with the egg broken. The leg was set, and after it got well the hen commenced to lay, making its nest in the cat's basket, under the kitchen table, laying 59 eggs in succession; this was the largest number without a rest. The hen was a pet and came to the kitchen for its share of the meals of the day.

LITERARY AND PERSONAL.

PREMIUM LIST OF THE LANCASTER COUNTY AGRICULTURAL FAIR.—To be held at McGrandy's Park, Lancaster city, on Monday, Tuesday, Wednesday, Thursday, Friday and Saturday, September 1st, 2d, 3d, 4th, 5th and 6th, 1884, containing also a list of officers; an address to the public, (which will be found elsewhere in this journal); rules and instructions; prices of admission; agencies for the sale of tickets, and indices to different departments and advertisements, making in all an octavo pamphlet of 68 pages, including tinted covers. The whole is

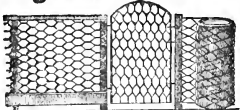
divided into eight departments, and these are again sub-divided into forty classes, and the premiums in all of them are unexceptionally liberal. The public will be able to judge from the characters of the officers (a list of which will be found elsewhere in this journal) what may reasonably be expected from such a combination of energy, intelligence, and social position. Although this may be paramount in conducting such an enterprise, yet it is not all that is necessary to assure success. Of course, it ought to pay more than necessary expenses; but it may be a success without that. No exhibitor should only be influenced by hopes of pecuniary reward immediately in exhibiting his wares to the public. He merely advertises them, and his compensating reward will be developed in the future. But there is another consideration intimately connected with the success of an agricultural, mechanical, commercial and domestic fair, and that is the absolute presence and encouragement of the people—not only as auditors but as exhibitors. Fairs in Lancaster county have not generally failed for the want of audiences so much as they have for the want of exhibitors. Hundreds of men in Lancaster city and county are constantly engaged through sensational advertisements and importunities to catch the patronage of the farmers, but would not give a cent, or exhibit a single article to attract the notice, or increase the interest of such an enterprise as a fair. Of course all cannot be exhibitors, nor yet any appreciable number of the public. Nor can those exhibit who have nothing to exhibit; and again, if all were exhibitors there would be no auditors, nor is it necessary to exhibit an object that has no comparative merit; nevertheless, it may be useful and instructive to exhibit a worthless object, if accompanied by the causes of its worthlessness. We have seen exhibitions of very inferior, and even *mean* fruit, but the object of the exhibitors was to warn the husbandman against spending time and money in cultivating a mean product under an imposing name and a sensational introduction. The indications now are that the approaching Lancaster county fair will be at least on a par with those of her immediate sister counties; but it ought to be more than that, it ought to surpass all of them and surely would, if its various products were displayed before the public and of which it has such an abundance.

THE COUNTRYSIDE AND INDOORS AND OUTDOORS, consolidated, devoted to country homes, country work and country schools. Published by the "Country-side Company," No. 40 Vesey street, New York. Monthly, at \$1.50 per year. A royal quarto of 32 pages, including advertisements and covers. Material, typography and literary matter first-class. Except in the advertisements the illustrations are but few. What there are, however, (in the June number for 1884,) are very characteristic, and a capital hit on some of our Pennsylvania, and even Lancaster county, modes of farming. The first page very graphically illustrates a *Business* farmer, who, under the guidance of "forethought" runs his farm; and the *Dredge*, whose farm runs him, under the reckless "trust to luck" principle. One page is devoted to very fair comments on political questions, and political personalities, and reflects as much as every journal ought to on political matters; for we don't think any man should be deprived of the liberty of rationally stating his views, notwithstanding he may edit and publish an agricultural, domestic and literary journal. "The Farm," "The Home," "Owl Talks," "The School," and indeed all the departments into which the contents of the journal are divided for the sake of convenient reference, are conducted with taste and ability; and in each will be found such a summary of current literature as is seldom presented in such a condensed and yet instructive form. We doubt, however, the propriety of quoting such a paragraph as that on page 167, entitled the "Fireworm," notwithstanding it appeared in such a distinguished journal as the *New York Sun*. True it contains only the language of a "correspondent," but its insertion in such a journal is, at least, a quasi endorsement.

The Newark Machine Co. will arise at once from its ashes.

The Newark Machine Co., of Newark, O., whose factory burned on Saturday morning, July 5th, contained a large number of Clover Hullers, Grain Drills, Rakes, Monarch Fans, &c. A large force of men are now at work building Clover Hullers, Grain Drills, &c. They are getting out material at the B. & O. Shops, at Zanesville, and John H. Thomas & Sons, Springfield, who have kindly tendered their factories, at which places, they are getting out the woodwork for Clover Hullers, &c., and expect to have some on the market by August 1st. They have received many letters and telegrams from different manufacturers throughout the U. S., offering them all in any way. The firms that have heretofore supplied them with raw material, have telegraphed them, offering anything they may have that could be used in the construction of their implements, at low prices and long credits. Their insurance is about \$250,000, distributed among 61 first-class companies in this Country and Europe, and the adjusters are now here and at work and expect to finish the whole thing soon. The Company has commenced building one shop 225 feet by 40 feet, 2 stories high, and 300 feet of shedding, to be used for work shop and paint room, and they expect to be ready after August 1st to fill any orders in their line of goods.

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Dr. S. S. RATHVON, Editor.

LANCASTER, PA., SEPTEMBER, 1884

JOHN A. HIESTAND, Publisher

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

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On and after **UNDAY, JUNE 24, 1888**, trains leave
the Depot in this city, as follows:

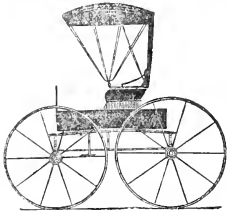
WE TWARD.		Leave.	Arrive
Pacific Express	1:55 a. m.	Lancaster	Harrisburg
News Express	6:25 a. m.	1:55 a. m.	7:30 a. m.
Way Passenger	6:30 a. m.	6:25 a. m.	8:50 a. m.
Mail Train via Mt. Joy	9:30 a. m.	9:30 a. m.	10:50 a. m.
Mail No. 2 via Columbia	9:35 a. m.	9:35 a. m.	11:05 a. m.
Nagara Express	9:45 a. m.	9:45 a. m.	10:55 a. m.
Hanover Accommodation	9:54 a. m.	9:54 a. m.	Col. 10:29 a. m.
Fast Line	1:55 p. m.	1:55 p. m.	2:55 p. m.
Frederick Accommodation	1:57 p. m.	1:57 p. m.	Col. 2:15 p. m.
Frederick Accommod.	2:59 p. m.	2:59 p. m.	4:00 p. m.
Harrisburg Accom.	5:30 p. m.	5:30 p. m.	7:20 p. m.
Lancaster Accommod.	7:30 p. m.	7:30 p. m.	Col. 8:15 p. m.
Harrisburg Express	7:40 p. m.	7:40 p. m.	8:50 p. m.
Western Express	11:10 p. m.	11:10 p. m.	12:25 a. m.

EASTWARD.		Leave.	Arrive
Mail Express	12:42 a. m.	Lancaster	Philadelphia
Philadelphia Express	2:27 a. m.	12:42 a. m.	2:55 a. m.
Fast Line	5:35 a. m.	2:27 a. m.	4:25 a. m.
Harrisburg Express	8:10 a. m.	5:35 a. m.	7:50 a. m.
Columbia Accommod.	9:00 a. m.	8:10 a. m.	10:20 a. m.
Seashore Express	12:58 p. m.	9:00 a. m.	11:45 a. m.
Johnstown Express	2:20 p. m.	12:58 p. m.	3:15 p. m.
Day Express	5:25 p. m.	2:20 p. m.	5:05 p. m.
Harrisburg Accom.	6:45 p. m.	5:25 p. m.	7:25 p. m.
			9:45 p. m.

The Frederick Accommodation, west, commences at Lancaster with Fast Line, west, at 1:55 p. m., and runs to Frederick. Hanover Accommodation, west, connecting at Lancaster with Niagara Express at 9:45 a. m. will run through to Hanover daily except Sunday.
Harrisburg Express, west, at 7:40 p. m. has direct connection to Columbia and York.
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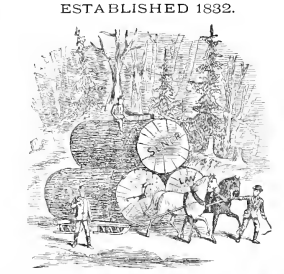
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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., SEPTEMBER, 1884.

Vol. XVI No. 9.

EDITORIAL.

SEPTEMBER.

"And as he and his train passed by

A dark and cloudy screen,

They ushered in a noble maid

That looked a very Queen,

Attended by two Elixirs, who,

A Cornucopia bore,

Filled with the ample products of

The mellow Autumn's store.

A coronet of Dahlias

Reposed upon her brow

Entwined among her golden hair,

The bright verbenas glow,

The luscious grapes in purple sheen

In clusters rich and tender,

Were scattered in profusion by

This genius of September.

It involves a seeming contradiction to call this the ninth month of the year, when the very name implies the seventh.

Perhaps the most noted, and at the time the most cruel and diabolical event that occurred in modern history, connected with the month of September, was the great French massacre, which was an indiscriminate slaughter of Royalists confined at the time in the Abbaye and other French prisons. The tyrant Danton gave orders for this onslaught after the capture of Verdun by the allied Prussian army. It lasted from the 24 to 4th of September, 1792. Eight thousand persons fell in the massacre. The men who planned and executed it were subsequently called *Septembriseurs*.

Although this is the ninth month of the year, reckoning from January, it was the seventh month of the old Roman year, which began with March. The name comes from the Latin *Septem*, or seven. French, *Septembre*; Prussian, *September*; Spanish, *Setiembre*; Italian, *Settembre*. Sandwiched between August and October, it constitutes the transition from summer to autumn, and embraces the beginning at least of the general fruit harvest of our latitude, in which that which has been "made" "now nature's.

"Our Saxon ancestors called this month *Gerst-monath*; for, the BARLEY which this month commonly yielded, was called *gerst*. This name was given to barley on account of a beverage made from it called *berce*, or *berlegh*, from which was derived *berlith*, and from thence *barley*."

This is usually a busy month in grain growing districts, and all other things being equal, those who usually succeed best, are those who proceed most systematically in preparing the soil for the seed; upon the quality of which much will also depend. "If we sow the wind," we shall likely "reap the whirlwind." The soil ought to be brought to a fine friable condition, and, some say, the seed should be deeply covered, which enables it the best to resist the alternate freezing and thawing of open winters. As a preventive of smut, it is recommended by some to steep the seed before sowing in a salt brine strong enough to

bear an egg, and then rolling it in pulverized lime. Of course the intelligent and observant farmer will select such seed as is best adapted to his own particular soil. Even when all other things visible are equal, seeds that succeed in one locality may fail in another. The quality of weight in seed, of course, means something, but experience has demonstrated that it is of less importance than purity. Perhaps in these things, as in all other things we ought to entertain "a decent respect for the opinions of mankind;" nevertheless, he who is ever dependent upon the experience of others, generally has no fixed methods of his own, and is always liable to be led astray. There is still room for a limited degree of culture in this month, a good crop of turnips and ruta-bagas cannot be expected without the necessary labor, hence those in drills need deep tillage.

Not only this, but seeds may be sown to produce plants for next spring; roots divided and reset; strawberry beds planted; celery may be earthed up; spinach for autumn use may be sown up to the middle of the month; scurvy-grass may still be sown for winter salad and lettuce in cold frames for next spring's planting; so says acknowledged authorities.

"PETTICOAT RADISHES."

How easy a thing it is for names of objects, whether of mineral, vegetable or animal, to become contorted, contracted or corrupted, especially French names. Far back in the history of London a noted tavern existed there that was known by the name of *Bull and Month*. A corruption of Boulogne Gate or Month, adopted out of complement to Henry VIII, who took Boulogne in 1544.

Petite cote, by a similar contraction, or corruption has become, in some localities "petticoat," which is the name of a woman's undergarment in other localities. *Petite* means something small as compared with something *Grande*, which means great, or large. *Cote* has a multitude of meanings, according to its relative or its differentiations as parts of speech. Literally it means a very small farm; a sheep-fold; strip of coast land, &c. In French-Canadian towns and villages on one side may be large farms, called *Grande Cote*, whilst on the other side may be smaller ones, called *Petite Cote*, and on them, especially along the Detroit river, are cultivated the somewhat famous "Petite Cote Radishes," so popularly known in the cities of Chicago, Cincinnati, St. Louis, and farther South, as well as in New York, Philadelphia, &c. These farms are laid out in narrow strips of about two French acres each, and are still held by the descendants of the original French settlers; and by their peculiar mode of culture they produce a radish that is crisp, tender and toothsome; and it is said, when they come in competition with the best of the other species of *Raphanus*, they not only "take the rag off the bush," but they take "rag, bush and all." The city of Detroit seems to be the head

market for these radishes, from whence they are distributed to other parts of the country. The lovers of these roots would no doubt welcome them to this market, instead of the spongy, or tough and acrid kinds that so often find their way here later in the season. It, of course, is out of season now, but if these radishes can be successfully raised in Canada they ought to succeed here, and should any of our "truck-farmers" feel disposed to experiment with them, we here adduce from the *N. Y. Weekly Witness*, from which much of the above is condensed, the following mode of culture:

At each farm-house there is a piece of ground set apart for radishes, from half an acre to two acres, and sometimes more in extent. This is heavily manured in the fall with old, well rotted stable-manure (of which they have always a supply several years old), and ploughed in. In the spring it is again ploughed as soon as the land can be worked, well harrowed, and then raked over smooth like a garden. The rows are planted by line six inches apart, and the seed put in an inch apart in the line as follows:

They have a rake with wooden teeth an inch apart. One person presses down the teeth, making holes two inches deep, another follows and drops the seed in these holes. Some of the best culturists put only one seed in each hole (having previously sifted out all small and imperfect seeds, having only those that are sure to grow). Others put two or three seeds in each hole, to ensure there being a full supply, in which case they have to go over and thin them to one as soon as they are fairly up.

As soon as the radishes are up so that the rows can be easily distinguished, they dibble in potatoes between every fifth row of radishes.

The quality of the soil and planting singly an inch apart and two inches deep appears to be the secret of success. Formerly they raised chiefly the long, salmon-colored radish, but now the long scarlet is entirely grown, being the most salable. A few turnip-rooted ones are also grown. The same land is planted every year to radishes and potatoes, without any deterioration. They all raise their own seed so as to have it pure and good. Each farmer or land-owner there clears as much as \$150 to \$200, and some \$400 of the radishes (besides what they get from the potatoes), about \$200 an acre being the amount realized.

There is a good deal of labor in connection with the culture, and in pulling and tying up the radishes, which is done in flat bunches of six each, but as the French are a primitive people, marrying young and having plenty of children, this labor devolves pretty much on them.

The radishes are sent to the D.troit market every day during the season, dozens of wagons and carts collecting at the Windsor Ferry before daylight to cross by the first boats. The radishes are at once bought up by those who distribute them over the country.

THE LANCASTER COUNTY FAIR.

The agricultural, Horticultural, Mechanical, Stock and Artistic Exhibition, held at McGinn's Park, during the first week in the present month, was, as we predicted it would be, judging from the known energy and enterprise of the gentlemen having it in hand, an unqualified success—perhaps the most successful of any exhibition of the kind ever held within the borders of our county. We do not even except any of the State Fairs held in the county. Such crowds of the yeomenry of the county, and such distinguished visitors as graced the occasion during the entire week, never was known before on any similar occasion. Neither has there heretofore been such a hearty recognition of the mechanical, mercantile and domestic producers of the county, and especially of the City of Lancaster. The material for a splendid exhibition exists here in abundance; all that is required is its concentration and exposition, and when this is systematically inaugurated there is no danger that the people will not encourage and patronize it. It is true that some may be attracted hither whose places would be more honored by their absence, but, at the same time, it would be impossible to draw the line of discrimination, other than that which the laws draw, based upon human conduct. It is useless to attempt a detailed description of the fair, for these matters were amply reported by our weekly and daily local papers; but in this issue we publish a list of the premiums paid, the recipients of them, and also for what they were paid. We do this because we desire to preserve these records for future reference in a more permanent form than that afforded by the local dailies and weeklies.

We trust that this may lead to a permanent organization, in order that the beautiful Park in which the Fair was held, may be devoted henceforth to the use for which it was originally intended. It will be observed that the premium list is quite a long one and the rewards worthily distributed with a liberal hand. Let us hope that this is only the beginning of an indefinite series.

NATURE'S EQUILIBRIUM.

At another place in this number of the FARMER, we copy from the Daily Record, a paper on the "Destruction of Small Birds," which was originally published in *Forrest and Stream*; which forcibly illustrates how the "equilibrium of nature" may be destroyed by human intervention, and the almost incalculable evil that may result therefrom. The wholesale and almost promiscuous destruction of small birds, at the mere beck of fashion, is one of the most stupendous and heartless factors that could possibly enter into the commercial productions of a civilized country. Formerly the trade was confined to foreign and gaudily plumed birds, but now it includes almost all kinds of birds of a small or medium size, no matter how plain their plumage may be; for the chemical art has been developed to give these birds any gay plumage that fashion or personal taste may require. It is true, that not all of these birds are insectivorous in their habits, but it is more than presumable that the great majority of them are of that character; in any event,

the great Lancaster farmer, in the animal world, through which nature's harmony is maintained, is sadly interrupted if not ultimately destroyed. Insects are duplicated by millions upon millions every season, and a large number of these little "feathered friends" feed solely upon these insects, as if by a special permission of Providence, in order that their redundancy may not defeat the provisions that have been made for the subsistence of the higher orders of creation, at the head of which is man.

If it must be, beautiful ornaments may be artificially made out of an abundance of existing material, without murdering birds in violation of the enactments of law, and the dictates of common humanity, if not common sense. Perhaps those that traffic in this species of merchandise may be most culpable, especially those who occupy the position of "middle-men," because they are influenced by merely mercenary motives, whilst the votaries of fashion, who are the consumers, may only be under the bondage of a morbid fancy.

If fashionable society is not satisfied with artificial imitations of the subjects of the floral and cereal realms for personal embellishments, but must draw upon those of the animal realm, there is an abundance of material that may be utilized for this purpose that would be quite as appropriate, entirely harmless, and freer from the infestations of those noxious insects which prey upon the petties of the different species of animals. During the "Great Centennial," held at Fairmount Park in 1876, there were on exhibition large collections of artificial flowers, made entirely of feathers, and amongst them some that were made of the feathers of domestic fowls.

The artist that could produce such flowers, could as easily have constructed an artificial bird, the proper coloration, as before intimated, being no obstacle whatever.

Now, in view of the immense and daily increasing poultry trade of the United States, and the whole civilized world, all of which must be divested of its plumage before it can be consumed, it is easily to be seen that the utilizing of this plumage would furnish an abundance of material for all useful and ornamental purposes; and all within the legitimate sphere of local and commercial law.

We have thus dilated, because we do not believe in pulling down an existing structure, without providing material for building up a better one. Legal enactments may be evaded or ignored; but public opinion ought to frown upon this bird-slaughter to appease the cold and heartless longings of a tyrannical fashion. The moral refinement is at least questionable, that could wear the stuffed skin of a bird as an ornament, knowing it to have been one of those species that subsist wholly, or partially on insects.

Of course, relentless fashion allows none of its votaries to exercise a thought upon the subject above the most external and selfish plane. We, by no means, argue that those are sinners above all others, who wear these bird-adornments, because in a multitude of cases, they are altogether ignorant, and perhaps indifferent, as to the real status of the subject.

We cannot at this time enter into a detailed

analysis of the article to which we refer on bird-destruction, but one or two points we cannot "pass in silence by." On a perusal of the article it will be seen that it relates to a few localities in the State of New York alone.

It appears that *one man*, on Long Island, furnishes annually 30,000 bird skins to the dealers in the city of New York. These are very probably not all insectivorous birds, doubtless some of them are game birds, shot in season, but at the very lowest estimate two-thirds of them are of the first-named character. 20,000 insectivorous birds withdrawn from the fields and forests of Long Island, must ultimately tell upon its vegetation, unless it is compensated by the most vigorous and intelligent remedial counteraction.

In the spring of the year, when a bird swallows a single caterpillar—if a female—it practically "gobbles up" the possibilities of from 300 to 500 noxious insects. If each bird of the 20,000 was only to destroy one such caterpillar during the season, the number of insects prevented would amount to 6,000,000, but basing our estimates on the two larger factors the result would be 15,000,000 of insects.

But these birds at the lowest estimate would average not less than one such caterpillar daily, throughout the season—say six months, or in round numbers, 180 days; and we foster the possibilities of 1,086,000,000. If Long Island tolerates this bird-slaughter, she deserves to be eaten up by "army-worms" and "Canker-worms." The bird-dealer in one locality pockets \$3,000 annually, the taxidermist twice that amount, and the milliner any amount between \$20,000 and \$40,000, whilst the farmers and gardeners suffer losses amounting to many millions, through this unbalanced condition of nature's economy. Under these circumstances, seeing a stuffed bird mounted upon a lady's bonnet, ought to create as much horror as viewing the impaled skulls that embellish the domiciles of the tribes, inhabiting the remote jungles of Africa. But it don't, the slaughter still goes on, because it is the *fashion*.

THE "SEED DRILL REGULATOR."

If this implement accomplishes what it professes, we don't see why forty bushels of wheat to the acre, in Lancaster county, may not be as certain a result as ten bushels are now; for a more philosophical and plausible theory of planting, and one coming more practically within the scope of every intelligent farmer's experience, we don't think we have ever read; and we would advise every farmer to send immediately to the *Seed Drill Regulator Company*, Lemont, Centre county, Pa., and obtain a copy of their pamphlet, entitled a "Revolution in Wheat Culture," read it carefully, and then order a drill, or the improved Regulators, and make a trial of them.

In their octavo pamphlet of 24 pages, illustrated, they may find more on the subject of wheat culture than they ever knew, and yet every line of it may contain a practical doctrine that, in one way or another, may have come under their observation many times, and the reasons for which it would not do for them to ignore in the present advancing condition of progressive agriculture.

All is within the acknowledged sphere of vegetable physiology, and, it seems to us,

could not possibly fail, so far as vegetable physiology is concerned.

It is not only said, but it often has been practically demonstrated that you cannot turn up soil, if it be one, ten, twenty, fifty or more feet deep, that will not in a very short time produce plants very different from those which naturally grow upon the surface, indicating that the seeds are *there*, but refuse to germinate for the want of *light and heat*, notwithstanding they may have sufficient *moisture*. The trinal function involved in "heat, light and moisture," in a greater or lesser degree, accompanies the germination of *all* plants, and constitutes the essential conditions of their development.

Of course, plants must have *air*; but this is only the medium through which light, heat and moisture, are developed; for neither could exist without air, or the elemental principles of air.

This germination of seeds, (that long have lain in the bowels of the earth,) after they have been brought to the surface, and subjected to the influences of light, heat and moisture, illustrates that they had been previously buried too deep to germinate, and must suggest that many of the grains sown by our present modes of planting, have been covered too deep to afford a ready germination—indeed, some of our oldest, most experienced, and universally acknowledged authorities in seeding and gardening, have demonstrated by actual experiment, that shallow planted small seeds germinate, grow and yield better crops, than those that are planted deep. Of course, the depth should have a corresponding relation to the size of the grain, all other things being equal. It is said that about five times the diameter of the seed should be the depth of the superincumbent soil, and that this should be sufficiently packed to bring the seed directly in contact with the particles of earth and fertilizers that surround it, and that this packing is most essential in a dry condition of the soil, or in a dry season. Let any practical farmer experiment with wheat, corn, barley, oats, clover, timothy or any other kind of seeds, planting at various depths, from half an inch to six inches or more; and he can demonstrate for himself the difference in germination and growth, as well as the time he gains or loses at the various depths. It is also claimed that enough time is gained to enable the farmer to sow very late in the season, and thus evade the "Hessian-fly," and still gain enough by germination and growth to secure his plants from the enervating effects of a rigorous winter. The fact is, *something must be done*, to secure larger wheat, oats and corn crops. It will not do to abandon them. The elements exist; have always existed; and will continue to exist. The farmer must learn how to combine them; in that consists the salvation of the crops.

A PLEA FOR THE ROBIN.

From the published proceedings of the August meeting of the "Lancaster County Agricultural and Horticultural Society," it appears that a sort of one-sided discussion of certain characteristics of the robin was indulged in, the conclusion of which seemed to imply that "the robin must go." How elap-

trap that phrase, "must go," has become; how easily it is said, and in a multitude of cases, with what little wisdom. The character of the robin is not to be built up, nor yet to be torn down upon by any such superficial arguments. We must discuss his character on a broader, more intelligent, and more catholic ground, if we wish to develop his merits or demerits, as the case may be.

What the Robin Steals.

And here, upon the very threshold of the subject, we *must* say, we do freely admit that the robin, during a portion of his advent amongst us, is perhaps more than ordinarily a purloiner of small fruit. True, he does not steal "watermelons and pumpkins," but he will unhesitatingly appropriate cherries, strawberries, raspberries, etc., but he is just as fond of chokecherries, gumberries, pokeberries, wild cherries, sheeberries, etc., if he can find any farm, the owner of which is liberal enough to allow any of these berries to grow.

The robin sometimes makes his appearance in Lancaster county as early as the middle of February, and although there may afterward occur a "cold snap" and drive him off, yet, if he leaves at all, he don't go far, for the first succeeding warm day his cheerful chirp may be heard in the vicinity.

The Robin's Return.

On an average, about the first of March he comes to stay, and often has a rough time of it. This is nearly, or quite, three months before the average ripening of small fruits, and the robin, *wiser* than some human beings, never eats *grain*. Nidification often commences about the middle of March, and from the 1st to the 10th of April everything is in order for oviposition. From four to five eggs is the normal compliment, only one being deposited daily, and in fifteen days after the last egg is laid, the young brood break through the shell. This would bring their sojourn down to near the 1st of May. Now, what have the adult birds fed upon during these two months? Under any circumstances, not on small fruits.

His Food Examined.

Let Prof. Thomas G. Gentry, of Germantown, Pa., who has devoted his time, mind, and practical observation to this very subject, as a specialty, answer. Prof. Gentry in his "Life Histories of the Birds of Eastern Pennsylvania," says: "The stomachs of robins examined by him revealed 10 species of Coleopterous insects, (Beetles); 7 species of Diptera (two-winged flies); one of Hymenoptera, (ants, etc.); 4 of Orthoptera, or grasshoppers; 10 species of Lepidoptera, (butterflies and moths) among which were the "spring web-worm," the "current moth," the "corn worm," the "white cabbage butterfly," the "canker worm" and the "apple codling," besides the "earth worm." Here are thirty-two species of insects, without regard to the number of individuals, some of which are capable of depositing from three to five hundred eggs during their life-lease.

Pre-eminently Insectivorous.

The robin produces two broods during the season, averaging four at a brood, and these are wholly fed upon insects. The larvae, and

the softer kinds of 10 or 12 species, constitute the "bill of fare" provided for their young. Mr. Gentry concludes, "of all species of birds, the robin is pre-eminently *insectivorous*," notwithstanding it does during the season appropriate strawberries, blackberries, raspberries, juniperberries, gumberries, etc. How long does the season of cultivated berries continue, compared with the sojourn of the robin, in any locality? It seems disingenuous to traduce the character of this bird, under a full view of his usefulness. The insects he absolutely destroys, is but a mole-hill to a mountain, compared with what he prevents from being developed. Millions of boxes of small fruits found their way to the different markets of the country this season whilst those destroyed by robins could not be counted by tens.

When we were a boy it was common to go to a copse of wild cherry or gumberry trees and "bring down" two or three dozen of robins in half a day, without violation of law. Such places have no existence now, hence the robin is compelled to approach nearer our homes. Plant more trees. In our boyhood there were ten cherry trees on a farm where there are only one or two now. There were plenty and to spare even for the robin.

ENTOMOLOGICAL.—THE BLIGHT BEETLE.

Miss M—— R——: "The small black beetles sent me (infesting the bark of the plum tree) are commonly called the "Pear blight beetle," and were first described by Prof. Peck, of Massachusetts, under the scientific name of *Scaphylinus pyri*, but, as they quite as frequently occur on the peach and the plum, the word *pear*, might as well be dropped from their common name. The term *pyri*, however, in their scientific name, has priority now, and is, therefore, as unalterable as the laws of the Moles and the Persians; nevertheless, they have been transferred to a new genus, and are now known as *Hyllobius pyri*. They are about one-tenth of an inch in length, dark brown or black in color, the feet and *antennae* a rusty brown, the thorax short, much convex and roughly punctured, and the wing-covers finely punctured in longitudinal lines. They must not, however, be confounded with the fire-blight, which so frequently and so injuriously infect the pear trees, and which is produced by a *Bacterium Fungus*. The females of these little beetles deposit their eggs early in the spring in the axils or near the bases of the buds or branches, sometimes also on the larger branches or even the trunks of the trees they infest, and they usually produce two broods annually. The eggs are very small and so are the young *larvae*, which soon find their way into the bark, the heart, or the solid wood, but their location is usually indicated by the external discoloration of the bark. The only known remedy that is at all reliable is to cut off the branches below the point of infestation, and reduce them to ashes by "fire and flame." But this should be done early, while they are in the *larvae* form, or before the beetles have escaped. It may not be too late yet, in the present season, to destroy at least *some* of them. When they are in, or under, the bark of the trunk of the tree, they may be cut out

with a sharp pruning knife, and the chips containing the larvae or the beetles consigned to the flames, whatever effect it may have on future broods.

SACK-BEARER.

ATLANTA, Aug. 18, 1884.

My Dear Friend: Will you pardon me for begging your opinion on the inclosed article from the *Constitution* of this city, and also for asking you to accept, examine, and if of sufficient value in your estimation, give us some information about the name and character of the specimen "worm" mailed to your address this day.

With kind regards to yourself and family.

Your friend,

J. J. SPRENGER.

325 Peachtree street, Atlanta, Ga.

Destroying Insects.

For some time past Colonel George W. Adair has noticed that the arborvitae hedge in his yard was not thriving as it had for years. It is a hardy plant and its drooping caused surprise. It was noticed that the tops of the hedge were dying and yesterday Colonel Adair endeavored to ascertain the cause of the trouble. On examining the bushes he discovered a great number of little pointed saws depending from the twigs of the shrub. One of these he pulled off. It popped open and revealed an ugly looking worm about an inch long. He was spotted like a rattlesnake and his glowing black eye gave him a decidedly venomous appearance. The hedge was found to be heavily burdened with these maranders, and its drooping was readily understood. There are complaints in all parts of the city of the ravages of insects on flowers and shrubs. Several remedies are suggested. Carbolic acid will destroy any insect life, but it is dangerous to the person who applies it. If used at all it should be with great care. Some persons who have had much experience recommend a solution of lime stone as a sure destroyer of pestiferous insects. It does not injure the person or the plant. In some cases smoking the afflicted flower or shrubs has relieved it. Such creatures as Colonel Adair discovered yesterday will probably need pretty severe treatment.

This is the famous "Drop-worm" or "Sack-bearer," of Pennsylvania and other Northern States, and now scientifically known as *Thyridopteryx phenaxreiformis*; but, destructive to the foliage of various trees as it is, it is one of the most accessible and easiest to extinguish, with only an ordinary share of vigilance and industry.

The foliages dangle from the branches of the trees all winter, and, except in evergreens, are very conspicuous. If they are then all cut off and burned, a repetition of them the following season will be impossible. Each of those spindle shaped *habitacla*, if that of the female, may contain from 300 to 500 eggs, each of which possess the possibility of becoming a sack-worm next season. See to the matter between now and April, 1885.

EXCERPTS.

ANÆSTHESIA was discovered in 1844.

THE first steel pen was made in 1830.

THE first air pump was made in 1654.

THE first daily paper appeared in 1702.

THE first lucifer match was made in 1798.

THE first iron steamship was built in 1830.

MOHAMMAD was born at Mecca about 570.

THE first balloon ascent was made in 1798.

COACHES were first used in England in 1569.

THE first horse railroad was built in 1826-1827.

THE Franciscans arrived in England in 1224.

THE first steamboat plied the Hudson in 1804.

THE entire Hebrew Bible was printed in 1488.

SHIPS were first "copper-bottomed" in 1782.

GOLD was first discovered in California in 1848.

THE first telescope was used in England in 1608.

CHRISTIANITY was introduced into Japan in 1549.

THE first watches were made at Nuremberg in 1477.

ENVELOPES were first used in 1839, a Yankee invention.

THE first saw maker's anvil was brought to America in 1819.

THE first almanac was printed by John Von Furbach in 1460.

PERCUSSION ARMS were used in the United States army in 1830.

THE first use of a locomotive in this country was in 1829.

OMNIBUSES were first introduced in New York in 1830.

KEROSENE was first used for lighting purposes in 1826.

THE first glass factory in the United States was built in 1780.

GLASS WINDOWS were first introduced into England in the eighth century.

THE first steam engine on this continent was brought from England in 1753.

THE first complete sewing machine was patented by Elias Howe, Jr., in 1848.

THE first Society for the Promotion of Christian Knowledge was organized in 1698.

THE first attempt to manufacture pins in this country was made soon after the war of 1812.

THE first prayer book of Edward VI. came into use by authority of Parliament on Whit-Sunday, 1549.

THE first temperance society in this country was organized in Saratoga county, New York, in March, 1808.

THE first coach in Scotland was brought thither in 1561, when Queen Mary came from France. It belonged to Alexander Lord Seaton.

THE manufacture of porcelain was introduced into the Province of Hezin, Japan, from China, in 1513, and Hezin were still bears Chinese marks.

THE first society for the exclusive purpose of circulating the Bible was organized in 1805, under the name of the British and Foreign Bible Society.

THE first Union flag was unfurled on the first of January, 1776, over the camp at Cambridge. It had thirteen stripes of white and red and retained the English cross in one corner.

THE first telegraph instrument was successfully operated by S. F. B. Morse, the inventor, in 1837, though its utility was not demonstrated to the world until 1842.

WHEN Captain Cook first visited Tahiti, the natives were using nails of wood, bone, shell and stone. When they saw iron nails they fancied them to be shoots of some very hard wood, and, desirous of securing such a valuable commodity they planted them in their gardens.

MEASUREMENTS OF AN ACRE.—The following will be found useful in arriving at accuracy in estimating the amount of land in different pieces of ground under cultivation: Five yards wide by 958 yards long contain one acre; as do also the following measurements: Ten yards wide by 484 yards long; 20 yards wide by 242 yards long; 40 yards wide by 121 yards long; 80 yards wide by 50½ yards long; 70 yards wide by 69½ yards long; 60 feet wide by 726 feet long; 110 feet wide by 369 feet long; 120 feet wide by 563 feet long; 220 feet wide by 168 feet long; 240 feet wide by 181½ feet long and 440 feet wide by 99 feet long.

WHY LIGHTNING STRIKES TREES.—The ordinary attractive power of trees is materially increased by the fact that a column of heated air and vapor arises from them, envelops the trees, and passes upwards. As this vapor is a better conductor than the surrounding air, it tends to draw the lightning to the trees. A single human being walking along a turnpike road, unless there be trees on both sides, is liable to be struck, being the most prominent object, and, of course, an umbrella, as ordinarily constructed, adds to the danger. It is much safer to close the umbrella and get wet.

IT is the fashion just now for agricultural editors to advise you not to waste time potting strawberry plants. Don't believe them when they tell you that layers are as good as pot plants. Potting plants may not pay best where strawberries are grown on a large scale for market, but for the great majority who plant enough for home use the thumb-pot is just the thing, and now is the time to begin setting them under the runners.

IN 1878 I cut a field of wheat that averaged thirty bushels to the acre, when it was so green that the bundles were very heavy to handle, and a neighbor, who cut it for me, seeing my miller, told him that I had ruined the crop. The miller told me after the year's crop was in that my wheat was the best sample received at his mill that year.—Waldo F. Brown in *National Stockman*.

IT is a mistake to think that your grain fields are the only place for your manure. Manure can hardly be put to better use than as top dressing for meadow and grazing land.

IF grape clusters profit by being covered by paper bags, why not secure the fine blossoms of larger flowering roses from the attacks of the rosebugs and other insects? Who has thus protected the unfolding buds of the queen of flowers? These blooms do not need the visits of any insects to secure pollenization because they are doubled out of the seed bearing habit.

THE firming of the soil upon newly grown

seeds and around the roots of transplanted plants is often overlooked. I recently set out my tomato plants, and in so doing I first wrapped a strip of folded brown paper around the base of the stem as a guard against cut worms, and after the plant was set the earth was pressed down with the feet and the whole weight of the body. The earth was left from the stem, and into this hollow a pint or so of water was poured. The earth can be afterwards leveled around the plant.

THE time spent in cleaning your work horses is not lost. Whitewash the stable. Keep the watering trough clean and sweet. Water often and a little at a time these long, hot days.

IMPROVE your stock. Francis Galton says nature is more potent than nurture. The successful dairyman or stockman means the same thing when he says that breed is better than feed. The best management is largely wasted unless you have well-bred stock to care for.

BEES dislike dark and fuzzy material. Wear light clothes to escape danger of stinging. James Heddon says in the *Bee Journal*: "A man with a plug hat on rarely gets stung, unless by a bee that, in trying to 'shoot the hat,' aims too low, and hits the face by mistake, while a companion at a suitable distance is perfectly safe."

Now is the time to fatten and market the old hens that have finished their laying.

A GOOD bath at night and fresh, clean clothing will put you in better heart for work next morning.

DON'T rob yourself of a good hour's noon spell because work is pressing. While you are resting after dinner is a good time to plan for a vacation trip with your wife after all the crops are gathered.

SHEEP enjoy a shady pasture and should have a weekly ration of salt. It is now time to consider the question of having early lambs next spring.

YOUNG pigs should be pushed for the early market. They much enjoy a run in clover. The orchard is a favorite place for pigs when they can eat the fallen fruit and grow fat upon the worms destroyed.

HAVE you made any plans for saving the best specimens of corn plants for bearing the seed for next year's crop? Give the selected stalks extra chances for development and superior seed may be expected. This is the way to improve this crop. It requires only a few years of careful selection and culture to develop a variety especially suited to the locality in which it has originated.

If the straps around your buggy whiffletree are too short the breast strap or collar will make your horse's shoulders sore. The whiffletree should have free play. If the straps check this play even for a single degree in the arc it makes about the centre the horse will suffer for the restraint.

A SLANTING board attached to the rear end of a cultivator, when it is worked through corn or potatoes, smooths down the marks of the teeth and makes genuine level culture.

THERE is a belief among old-fashioned housewives that the ashes from apple-tree

wood makes the best soap. This means that this is richer in potash than ordinary wood. If this is true the trunks and limbs of an apple orchard hold much potash, and a great deal more blows away every Autumn with the fallen leaves. This suggests potash and ashes as fertilizer for orchards.

A cow is a kicker in many cases in return for the abuse received from the milker. I do not blame a cow that is worried by the dog, pounded by the hired man and sworn at by the boss for defending herself with heel and horn. But there are, too congenital and chronic kickers—cows that kick for the same reason that so-called Independent politicians kick—simply to display their superiority to ordinary cows. Such cattle are even worse than the politicians, for they are not even amusing. Fatten them for the stambles without delay.

CONTRIBUTIONS.

OWNING LAND.

BROOKVILLE, O., Sept. 1st, 1884.

TO THE EDITOR OF THE LANCASTER FARMER.—Sir: I don't know but what I can do your readers more good by writing you a short communication on the importance of owning land. For land is the habitation of man, the store house from which he must draw all his needs. The material to which his labor must be applied for the supply of all his desires. The ownership of land is the great fundamental basis of the social and political condition, and consequently the intellectual and moral condition of a people. On the land we are born from we receive the sustenance of life. To it we return again; we are children of the soil, as truly as is the blade of grass, or the flower of the fields. Take away from man the land, and he is but a disembodied spirit.

Everywhere in all times among all people, the possession of land is the basis of aristocracy, the foundation of great fortunes and the source of power. We can neither build houses, nor barns, nor factories, nor schools without land, and in short, we can do nothing without it. With land we always have something to do. As labor is a great moralizer, this is an important matter. Greeley once wrote, that anyone was happy who had something to do, and a disposition to do it. As population increases, so will wages decrease, and land increase in price, hence it is important to own our land, as early in life as possible, so that when wages gets down to the starvation point he may find employment on this land. "Go, get yourself a piece of land and hold possession." Young man, go West, and get land. "To whomsoever the soil belongs," to him belongs the fruits thereof.

In France it is unlawful for a man's landed estate to be sold at his death, it must be divided among his heirs so that each one will get a piece of land.

In Belgium and Holland more people own land in proportion to the number of acres and number of inhabitants than in any other country, and they are said to be the happiest people on the globe. For some people to own too much land, is as bad as for some to have none.

Congress should by all means prevent monopoly in land, for land they can't make. As Deity is everywhere present, and this is His footstool, everyone of His children should be an inheritor of a part of it.

Wheat in this county averaged about 18 bushels to the acre; potatoes are turning out better than was anticipated; oats is unusually good.

After an unprecedented drouth, it is now trying to rain, but it is only a try, a bare sprinkling. For weeks the plows have been stopped, with the fields only partially plowed for wheat, much of the pasture is dead and dried. I have never seen it so dusty, except in California, everything is covered with dust, we are therefore breathing a comical dust. Doubtless our atmosphere is like what it was before the waters were separated from land, only a little dryer.

G.

SELECTIONS.

DESTRUCTION OF SMALL BIRDS.

Much has been said and written of the destruction of our large game in the Adirondacks and on the Western plains and mountains, but how little is known of the enormous numbers of small birds that are daily being killed for purposes of decoration! It is difficult for one who has not made a special study of this subject to realize how much harm in every way is being done by this means. The farmers, above all, have deep cause to regret this extermination of our small birds. Bird life exists almost wholly through the death of some other form of life, and by destroying insects, worms and other noxious creatures the bird is of the greatest use to the farmer by protecting his crops. The vast slaughter that is going on among our birds is already a source of serious anxiety to all who take an enlightened interest in agriculture.

This destruction goes on mainly about the great centres, but it is by no means confined to any one section. We know, for example, of one dealer residing on Long Island who, during a three months trip to the coast of S. Carolina last spring, prepared no less than 11,018 bird skins. A considerable number of the birds killed were, of course, too much mutilated for preparation, so that the total number of the slain would be much greater than the number given. The person referred to states that he handles on an average 30,000 skins per annum, of which the greater part are cut up for millinery purposes. This in the past. At present the trade is growing, and at a rate which is startling. We are told by people who have the best facilities for knowing that there are, and have been since early spring, hundreds of people on Long Island shooting birds for the middlemen, who supply the taxidermists and dealers.

During the past spring and summer, and up to the present time, large boxes of birds "in the flesh" are coming into New York. They are delivered to taxidermists, who employ girls to skin for them, and then sell the prepared skins at 10 or 11 cents each. From a single locality on Long Island one man, who buys from the local gunners, sent in during the week ending July 26 over \$300 worth of birds. As the prepared skins sell, as

dated, for about 10 cents apiece, the number of birds must have been considerably over 3000, and the total destruction was probably at least one-half greater. The same man has sent, during this season, from the early spring until the present time, an average of 300 birds a day to a William street taxidermist, 200 a day to a Bleeker street man, and from 100 to 150 per day to a dealer in New Jersey, or an average of between 600 and 700 birds daily for a period of four months, making a total of not far from 70,000 birds in all. This, be it remembered, is from one single village on Long Island. It should be added that, besides these birds sent to the dealers, this same individual sends in a vast quantity of snipe to the New York markets.

Of all the cases which have come under our notice since we first set on foot inquiries in regard to this subject this is the most appalling, but there are others that are only less so. A father and two sons shot for three weeks near Rockaway, and made over 2000 skins; there is a man at Sag Harbor, and another at Shelter Island, who are preparing skins; a man near Bath does the same. In fact, there seems to be a great opportunity for Game Protector G. W. Whittaker, whose jurisdiction extends over the counties of Kings, Queens and Suffolk, to do a lot of missionary work in enforcing the statute for the protection of insectivorous birds.

The evil to which we are calling attention is not, however, confined to any one section of the country. The water birds, perhaps because they are larger than our insectivorous birds, seem to be quite as eagerly sought after as the land birds, and are shot literally by myriads. The dealers complain that there are "no sea swallows now." Strange, is it not, that there shouldn't be none? The following extract from the Baltimore *Star* may suggest an explanation of the mystery. Read it:

"During a recent trip with the Orpheus Sailing Club, of Baltimore, to the well-known Cobb's Island, the following facts were ascertained and created a very unpleasant impression: An enterprising woman from New York has contracted with a Paris millinery firm to deliver during this summer 40,000 or more skins of birds at 40 cents apiece. With several taxidermists she was carrying out the contract, having engaged young and old to kill birds of different kinds, and paying them 10 cents for each specimen not too much mutilated for millinery purposes. The plumage of most of the birds to be obtained at this island is plain, but with the assistance of a little dye it is soon transformed into that of the gayly-colored tropical birds. The birds comprised in this wholesale slaughter are mainly the different species of gulls and terns, or sea swallows, of which many species in large numbers could formerly be found upon this island. But now only a few of these graceful birds remain upon Cobb's Island itself, and the pot-hunters, or rather the skin-hunters, have to go some distance to carry out their cruel scheme. If we consider that with each old bird killed—and only old birds have a suitable plumage—also many of the young birds, still unable to take care of themselves, are doomed to starvation, this wholesale slaughter becomes still more infamous and criminal."

We happen to know that the above is no exaggeration, but is strictly true. Is this not a rather alarming state of affairs? On the whole, it is about as bad as what is taking place on Long Island.

Now what is the public, and especially the great army of bird lovers in the United States, going to do about this? What do the farmers and fishermen think of the destruction of their friends and allies, the birds?

It is an easy matter to sit still and do nothing. It will be some trouble to call the attention of one's friends and neighbors to the subject, and to urge each one of them to do what he can to stop this butchery; some trouble to warn off from one's premises every man who carries a gun; some trouble to go a little out of your way to speak to the local game protector, or to write him a letter.—*Forest and Stream.*

VITALITY OF WEED SEEDS.

How is the vitality of the seeds of our most common weeds, such as dock, sorrel, chickweed, shepherd's purse, white daisy, etc., affected by the action of the digestive organs of animals? This inquiry was addressed to Professor Maynard. He answers in a bulletin published by the Massachusetts Experiment Station: Seeds were fed to a horse, and the refuse collected. Upon examination, it was found that unless the seeds were crushed they remained uninjured and germinated readily. The experiment was repeated several times with the same result.

This point settled, it becomes important to know how the same seeds are affected by the action of the compost heap, for while the farmer should not allow weed seeds to mature on his farm, such seeds do ripen, and it is necessary to provide means for their destruction. For this purpose a series of experiments were carried out, the result of which is that seeds are destroyed if exposed to a temperature of from 90° to 110° F. for from five to seven days in a moist compost heap. In a dry compost heap, where the temperature runs as high as the above, the seeds were found but little injured. The efficiency of this mode of destruction depends upon the maintenance of a continued high temperature and moisture, which will cause the seeds to either germinate and then decay, or to decay before germinating. The amount of moisture can be easily regulated, and by properly working over any pile of compost containing a large amount of organic matter the required amount of heat may be obtained. From the above experiments it would seem doubtful if the practice of keeping swine upon manure piles to cause slow decomposition is the best for manure containing weed seeds. It is also doubtful if the seeds of weeds, often put into the pens where pigs are kept, will be destroyed by the action of the little heat there generated. It would probably be safer in both of the above cases to compost the manure in large piles before using it upon the land.

The white daisy has become so abundant in many of our meadows that it is important to know at what stage of its blooming the seeds become ripe enough to germinate. In other words, if this weed is cut with the grass, are its seeds mature and dangerous? On this

point Professor Maynard reports: After a series of careful examination it has been decided that when the flower first reaches its full expansion few or no seeds are mature enough to germinate, but that it requires only a few days for these seeds to mature to full ripeness. In view of these facts it would not seem safe for the farmer to depend wholly upon the early stage of cutting, but to afterwards compost all manures made from fodder containing weeds of any kind.—*Phila. Press.*

THE GOOD WELL.

It is doubtful if pools and ponds ever furnish fit water for stock; it is certain that they do not at this season. Streams fed and kept continually running by rocky springs furnish pure water, but over a greater part of this country the streams are fed only by surface washings. Such streams are made swollen torrents by rains, carrying in their waters much filthy sediment; in the dry intervals they degenerate into chains of slimy pools. Wells only can be depended on in such regions, and not all wells, for many of them yield water unfit for human consumption, and what is not good enough for the farmer is not good enough for his stock.

Much of the disease among farm stock is due to the impurity of the water they drink. Dr. Detmers, in his investigations of the swine plague, found that the *bacilli* were so well preserved in water containing an admixture of organic matter and so often conveyed by filthy streams that he pronounced these streams the most fruitful agents in the spreading of this disease. The danger, of course, is greatest during hot weather.

The good well is dug in a dry time. Wet weather wells cannot be depended upon. They fail just when they are most needed. Often they are fed from "seaps," and the water is unwholesome. A dry weather well is fed by an underground stream, uncontaminated, cool and constant.

A good well is not less than twenty feet deep. The deeper the vein of water is struck the better it is. The shallower the well the warmer its water will be and the more defiled from the decaying matter in and on the soil.

The good well has a tight wall—so tight that the earth cannot crumble through, and tight enough to keep out rats, mice, toads, snakes, etc. Brick, hard-burned, make the best wall. They will last as long as the well will. Stone walls are rarely made close enough. Even in soil where there is no danger of the walls caving in, they should be tight.

The wall of the good well is built up for at least a foot above the surface and a broad firm bank of clay made around it. The harder this clay is stamped the better. It will keep out rats, mice, etc., for it will soon get so hard that they cannot tunnel through it; even the mole will give it up in disgust. As clay thus formed is impervious to water, the bank will keep out surface water, a very important consideration.

Upon the top of this wall and this bank the good well has a tight enough fitting for the pump to sit upon. It is well to make a shallow bed of soft cement and lay the platform down on that. Around the platform and over

the clay put a shallow coat of soil—just enough to grow blue grass, and sow blue grass seed; or instead of this, sod around the platform.

Since the introduction of the rubber buttons, I prefer a chain pump to the suction pump proper. I do not know that the suction pump is not the lightest and easiest, but it is the most liable to get out of repair. The rubber buttons make the chain pump the fastest pump, as it will throw a stream of water the full dimensions of the tubing and also a continuous one.

Up to within a few years ago it was the universal practice to put a flat rock in the bottom of the well, and upon this rest the tubing. I can commend the later plan of nailing flies out from the tubing to keep it in the centre of the well and suspending it from the top. The lower end of the tubing should reach within about a foot of the bottom of the well.

Where any considerable amount of water is to be raised for stock it will pay to get a wind-pump. The entire cost of such an outfit need not exceed \$100 or \$125. These wind pumps have now been reduced to almost perfection. They are self-regulating, and troughs are manufactured which will allow the water to escape as fast as it reaches a certain point. With such appliances a supply of fresh, cool water can always be kept before stock without manual labor.—*W. Press.*

GREEN MANURING.

Plowing under green succulent growth for manure is less common than it once was. Forty years ago this was the method in Western New York for growing the wheat crops which gave this section its celebrity. Clover was the green manure used, and alternate wheat and clover crops made the ordinary rotation.

Summer fallowing, which included plowing under a rank growth of clover, did not give way until the weevil about 1854-5 and 6 made, for a time, wheat-growing impossible. Farmers were driven into mixed husbandry, and when they again took to growing wheat, it was after oats or barley. A few years later it was found that with superphosphate as good or better wheat could be grown after these grains as were ever grown by summer fallow. Those who tried summer fallowing again, found that its results were uncertain unless the phosphate were also used. If phosphate had to be purchased, the majority of farmers preferred to buy a little more and make a spring crop before sowing wheat, which very often paid better than a crop of wheat on the best summer fallow.

One supposed advantage of the naked fallow, with clover ploughed under, was in freeing the land of weeds. This was only partially true. Our land under hoed crops is not more foul than it was forty years ago. With some kinds of weeds, as red root, it is clearer now than then. Nor does the ploughing under of clover permanently enrich the soil. The decomposing clover itself is helpful, but an equal or greater advantage may be had by passing it through animals and spreading the manure. We cannot make the manure go so far nor spread it so evenly, but this is more than offset by the profit on the feeding of clover hay, which yields a fair return if fed to

fattening stock in winter, with corn or cottonseed meal.

There is likely to be a revival of green manuring, but it will hardly be of clover nor for wheat. We cannot afford to take the growth of two years to make one wheat crop while in hot competition with Western growers. Besides clover is too valuable for feed to be plowed under. Other crops will pay better than wheat, and other green manures will take the place of clover. One of these is winter rye, and its advantage is that its growth is made in fall and early spring, so that it can be turned under in time for corn, potatoes and beans. Rye is not as valuable a green manure as clover, but it is better than nothing and its only cost is the seed. On corn or potato ground that would otherwise be naked during the winter, rye protects the soil from washing by rains or blowing off by the fierce winter winds. Its decomposition makes the soil light and porous which is an advantage for either corn, potatoes or beans. This extreme friability of soil, caused by decomposing a rank growth of clover, is not favorable to wheat. Unless the fallow was plowed early in June, so as to allow the soil to compact before wheat seeding, the clover was apt to do as much harm as good. Those who summer fallow for wheat now cut or feed off the early growth of clover, relying on the roots to make a rich seed bed.

Clover is more profitably plowed under a year after seeding and in preparation for some hoed crop. The increased crop of corn or potatoes will give a good profit on the clover, with much less labor than would be required to cut and feed it. Since the advent of the clover worm this plowing under of clover has become a popular mode of utilizing it. The practice is wasteful in one sense, from the fact that, if left, the clover root would become larger and penetrate the sub-soil more deeply. But, as it is pretty certain that if left alone, the clover worm would destroy the crop, it is better to destroy at once this enemy than the crop it feeds on.—*Wm. J. Fowler in Press.*

CAUSE AND CURE OF CONSTIPATION.

Insufficient supply of water or of succulent food is probably the ultimate cause of three-fourths of the cases of ordinary constipation. The appetite for liquids which, under strictly normal conditions, would regulate the supply to the demand, is, under the ordinary conditions of civilized life, largely controlled by habit, and habits are often established by thoughtless concessions to convenience. Habit has quite as much to do with the taking of food at stated times as appetite has; the latter merely coming in to decide how much shall be taken, and this decision is often based upon the quality of the food and the time allotted to the process; and too much liquid taken with the food so embarrasses digestion as to cause inconvenience; and thus not only is a bad habit prevented, but a still worse habit of taking too little liquid is liable to be fallen into. So, too, with drink proper, or water taken at other than mealtimes. The appetite for it is often not strong enough to break through the occupations of the time, and, by habitual neglect, soon disappears altogether. Any one who is

sufficiently observant of his lesser instinctive wants will find that, after the first stages of digestion and absorption, a glass of water is particularly acceptable, and the most acceptable time will vary with the rapidity of the digestion of the individual—generally from one to two hours after the meal. The other times for taking water will depend largely upon the amount of exercise, since these are chiefly to supply the waste by the lungs and the skin.—*Dr. Squibb, in Epilepticus.*

CONDITION OF THE BARN AT MILKING TIME.

One of the speakers at the meeting of the board of agriculture, recently held at Lowell, urged the importance of having pure air in the barn at time of milking, and stated that "cows ought not to be carded before milking and the barn swept up," giving as a reason that "it filled the air with particles of impurities and bad odors." This may be correct, and it perhaps often causes an unpleasant taste in the butter that the farmer is at a loss to account for. For as we have said in a former article milk absorbs bad odors more readily than most other substances.

Thus it would seem that the farmer, by the very act of trying to keep his barn swept and clean puts it in the very condition required to taint the milk. But the question arises, if the cow cannot be cleaned and the barn swept just before milking, is it good policy to milk the cow before she is clean and the barn swept? This would certainly be very undesirable; in fact we cannot help thinking it would be almost impossible to milk an uncleaned cow, without injuring the milk by the hairs falling into it, and also whatever loose particles of dirt might be on the milk bag. As a rule the farmer cannot clean his barn and card his cows early enough in the morning and leave time enough before milking to air the barn, and have all the flying particles of impurities settle. There seems to be but two ways to avoid this trouble. First, by carding and cleaning the cows in a shed before milking, then return them to the barn to be milked. Second by cleaning the cows in the barn, then leading them to warm, clean room to be milked. The last would seem to be the best method.

This is a matter for serious thought to those farmers who desire to make gilt edged butter they can sell for a dollar a pound. If as the speaker remarked, tobacco in the mouth of the milker will effect the milk, it is no wonder that it is so difficult to make first quality butter. We have for sometime entertained the idea that farmers as a rule, have not given attention enough to pure air in the barn and the milk room, but confess had not thought much of the consequences of the bad breath of the farmer or we should have urged him to abandon onions as well as tobacco.—*Massachusetts Ploughman.*

CLEAN DAIRIES.

Every farmer and farmer's wife, says the *Germantown Telegraph*, conducting a dairy with the surest aims to success, knows that perfect cleanliness and ventilation are the most important requirements to be observed, and cannot receive too careful attention. Some of the largest and most profitable of

the dairies in Germany, which is celebrated for these indispensable attributes of a great class of agricultural establishments, are constructed partly underground and are quite dry and always kept as neatly as possible at a temperature of about sixty degrees. The floors are paved with hard brick, cemented, and small channels of pure water are conducted through the apartments. The air also circulates freely through them, and the vapor of the milk passes off unobstructedly. The walls are smooth and whitewashed, and nowhere can there be seen a trace of dust or even a semblance of dirt.

The pans are placed low down on the floors, never on shelves, while the atmosphere within is perfectly free from every disagreeable odor that might have the effect of impairing the sweetness and purity of the exposed milk and cream. Here, in our State, and especially in the eastern portion of it, our best dairies are conducted on similar methods, except that they are not frequently sunk beneath the surface of the ground, though they sometimes are where the spring is so located as to make it necessary. Running water is of the utmost importance in the manufacture of a first-class article of butter; and where springs are not attainable on the surface, the admirable wind pumps that have been introduced upon our farms fairly supply this deficiency.

CANADA THISTLE.

The vilest pest that infects our fields is Canada thistle. Our farmers are just waking up from insensibility as to the enormous injury which this noxious weed is about to inflict upon them. Ten years ago they saw it here and there in the woods, and occasionally a small spot in some obscure field, and they were very little alarmed about its spreading over their land, but now they are waking up from their lethargy, and find they have just cause to dread its existence among them. Its spread is frightful, and if it continues ten years longer unchecked, spreading both by extension of root and seed, it will overrun their farms and deprive them of more than half their value. Who can rest in quiet composure and calmly view the ravages it is making? It has cost you a lifetime of labor, skill and economy to purchase and pay for your farms. Will you lose all by allowing them to be irredeemably ruined by the ravages of the Canada thistle? Or will you rouse up while you may and exterminate the pernicious pest? Wait many years longer, and your hopes and labors will both be vain. Every man and boy in the country ought to be one of a vigilance committee and search out and destroy this nuisance. The Legislature of Pennsylvania has anticipated the result of the growing evil, and wisely made provision against it, so far as a positive law can provide for the extermination of a natural evil. The following act was passed by the Legislature of Pennsylvania, March 22, 1862, for the extermination of the Canada thistle:

"It shall be the duty of every person or persons, and of every corporation holding lands in this commonwealth, either by lease or otherwise, on which any Canada thistle or weed, commonly known as the Canada thistle, may be growing, to cut the same, so as to prevent such weed or thistle from going to

seed, and the seed of the same from ripening; and any person or persons, or corporation as aforesaid, who shall or may have land as aforesaid, in such counties and who shall neglect, or refuse to comply with the provisions of this act, shall forfeit and pay a fine of fifteen dollars, one-half to the county treasurer, and the other half to the use of the person suing for the same (who shall be a competent witness to prove the facts) to be recovered as other debts of a like amount, before any justice of the peace or in any court of record in said county.

"If any person or persons, or corporations so holding land as aforesaid, on which Canada thistle, or the weeds commonly known as such, shall be growing and likely to ripen seed thereon, shall neglect or refuse to cut and destroy the same, so as to prevent the seed thereof from ripening, it shall and may be lawful for any person or persons, who may consider themselves aggrieved, or about to be injured by such neglect or refusal, to give five days' notice in writing to such person or persons, or corporations, to cut and destroy such weeds or thistles, and on their neglect or refusal to cut and destroy the same, at the end of five days, it shall and may be lawful, for any person so aggrieved, or believing themselves to be injured thereby, to enter upon, or hire other persons to enter upon such premises, and cut down and destroy such Canada thistle, and the person or persons so employed, shall be entitled to recover from such person or persons, or corporation, owing or holding such land, compensation at the rate of two dollars per day, to be sued for and recovered, as debts of a like amount before any justice or court in said counties."

CHEESE FOR HOME USE.

Every pound of cheese requires ten pounds of milk, and a ten-pound cheese is about as small a one as can be conveniently made. A clean tub which will hold the milk, and a boiler large enough to hold ten gallons, will be needed. A small press, which any smart boy can make, with a lever to hang a stone upon, will also be required, and then the "know how" is all the rest. Making cheese is a chemical operation, and depends greatly, like all other such work, upon temperature. One cannot be safe without a thermometer, as a rule of thumb will not be precise enough.

The first thing to do is to bring the milk to a temperature of 90 degrees. This makes a soft cheese; a higher temperature will make a hard one. The milk may be of two milkings; the evening milk set in a deep pail in the cellar, and stirred late at night and early in the morning to keep the cream from separating, and the morning milk mixed with it as it is strained after milking. If any cream has risen on the evening's milk, it may be skimmed off. The evening's milk may be warmed to 100 degrees and then added to the fresh morning's milk, which will be about 80 degrees; the whole will then be about the right temperature, which is 90 degrees. The rennet is then added. This is the liquid made by steeping a piece of the dried stomach of a sucking calf in warm water.

For one hundred pounds of milk, or forty-five quarts, a piece of the rennet about as large as one's thumb, or two inches long by

one inch wide, is put in a quart of warm water in the evening, with half a tablespoonful of salt. In the morning this liquid is strained into the warmed milk in the tub and well stirred through it. The tub is then covered to keep the milk warm until the curd is formed, which will be in about half an hour. As soon as the curd is formed enough to cut a long-bladed knife is drawn through it both ways, so as to cut the mass into inch cubes. This causes the whey to separate, and when this separation has been effected, the whey is dipped out or drawn off, and the curd gathered into a mass at one side of the tub, the tub being raised at one side to cause the whey to drain off.

The tub is kept covered to retain the heat, or if the curd has cooled considerably, the whey that has been drawn off is heated up to 100 degrees and turned on to the curd until it is warmed through again, and the whey is then drawn off. The curd remains thus for about an hour, until it attains a very slight degree of acidity, when it is broken up fine with the hands, salted with about half an ounce of salt to the pound of curd, and put into the hoop. The hoop for a ten-pound cheese should be about eight inches in diameter and ten inches deep. It has neither top nor bottom. It is placed upon a smooth board, and the curd is pressed down into it with the hands.

When the curd is all loose, a cover is placed on it, and the hoop is put under the lever, which presses down upon a block resting in the cover. Very little pressure is required, and this only until the curd has become solid enough to keep its shape; twenty-four hours in the press is quite enough, the cheese being turned twice in that time. The cheese is then taken out and the outside is rubbed with butter and wrapped in a cotton bandage, the edges of which are turned down on the two faces for an inch or so. The cheese is then placed in a cool room or cellar, and is turned every day for a month, after which it should be turned once a week for another month, when it is fit for use.—Miss Maggie Webster, in *Ontario Farmer's Advocate*.

A NOVEL SWINDLING SCHEME.

For some time past there has appeared in a large number of papers throughout this country, a letter from one L. L. Johnson, Fort Scott, Kansas, giving a glowing account of his success with a certain egg-incubator, called the "Common Sense." The following is part of his letter:

"I began to look around for a more perfect hatcher, and my attention was directed to the 'Common Sense.' In June I got directions from J. M. Bain, New Concord, Ohio, Secretary of the N. A. Poultry Association, who will send directions for making this hatcher to anyone sending three two-cent stamps to prepay postage. I made one that held about 250 eggs; cost, about \$7.00. My success with this hatcher was all I could wish for, and I immediately had four more made. From these five hatchers I have just taken 1,030 fine chicks out of a little less than 1,200 eggs. I believe I am placing it modestly when I say that I hope to clear by July \$2,500, and still pursue my usual business."

Well, now let us send three two-cent stamps to Mr. J. M. Bain, New Concord, Ohio, and

in return we receive a circular giving "Directions for constructing the Improved Common Sense Incubator." This circular, however, only takes one cent for postage, giving Mr. Bain a profit of five cents on the postage of a circular. This circular gives the following information free:

"To those who have never used an incubator, we would say that you can get full and explicit directions for managing it, which will tell you at what temperature to keep the eggs during the period of incubation; how to keep the eggs properly moistened; when and how to turn them. Also full and complete directions for making a Brooder or Artificial Mother, which you can make at a cost of less than \$2, and with which you can raise chickens in the coldest weather, and without which you cannot raise them at all. Also plain directions for caponizing chickens—these directions alone are very valuable to anyone wanting to raise poultry, as capons sell for twice as much as chickens not caponized. Will also tell you how and what to feed your chickens on, and how to manage them in general. How to cure the diseases of young chickens; how to get rid of lice; how to cure the roup and cholera; when, how, and where to market to secure the highest prices. The best varieties to raise for market. Explicit directions for dressing and packing poultry, and for packing, shipping and selling eggs. How to build the best and cheapest poultry houses. In fact, everything necessary to make a success of the business. It is of course impossible for us to give you on this sheet the above information as it not only requires more space than we can give, but being copyrighted, we have no right to publish it; but by sending two dollars to the Common Sense Incubator Company, New Concord, Ohio, they will send the Common Sense Incubator Book containing all the above information."

Now, let us send \$2.00 for the above very comprehensive work, and in return we receive a small paper cover book of thirty-two pages, not worth more than five cents, and we find we have been defrauded to the amount of \$2.

We think it very strange for the Secretary of the "North American Poultry Association" to swindle people in this way, and we ask, is Bain the secretary of this association, but we find an answer already printed on the back of the circular. It reads thus:

OFFICE OF THE
NORTH AMERICAN POULTRY
ASSOCIATION,

NEW CONCORD, OHIO.

Officers:

J. R. Trace, President; J. C. Bell, Treas.; J. M. Bain, Sec'y; Vice Presidents: J. J. Ingalls, Ohio; Henry Gordon, Mich.; Samuel Sheppard, Pa.; Wellet Ferris, Ill.; Chas. B. Wilson, Minn.

But no post-office addresses are given.

There is no such association as the "North American Poultry Association" in existence excepting in the minds of this scoundrel Bain and his victims.

The letters supposed to be written from Fort Scott, Kas., are, we find on examination, post-marked New Concord, Ohio. They are written by Bain, signed by him, and mailed to hundreds of editors of agricultural

newspapers all over the States and Canada, who bite easily, snatch at them as valuable information, insert them in their papers, thereby displaying their ignorance of poultry matters, and giving this fraud hundreds of dollars worth of free advertising. A large number of letters addressed to L. L. Johnson are received at Fort Scott, Kas., no doubt from persons desirous of making further enquiry about his "success in the poultry business." The postmaster at Fort Scott says that there never has been and is not now, any person of that name residing there.

The object of this scoundrel Bain is to lead people to believe that there is a "North American Poultry Association," located at New Concord, Ohio, and that he is secretary, and thus he secures the confidence of those not acquainted with poultry matters. He gets their confidence and then their money. At the same time, by assuming the name of L. L. Johnson and sending out these letters, he secures his advertising free.

THE CABBAGE FLY AND ITS
RELATIVES.

In England one of the greatest obstacles the cabbage grower has to contend with is the maggot of the cabbage fly, which sometimes destroys whole fields of cabbages. As the insect has already appeared in this country and has done some damage our readers are interested in knowing something about it in advance that they may be prepared to meet it when it makes its appearance in their crops. The insect is own brother to the destructive onion fly, the beet fly and the seed corn maggot, all of which belong to the genus *Anthomyia*, the cabbage fly being *A. brassicæ*. The maggots eat numerous holes in the stems and roots of the cabbages, on account of which especially in wet weather decay sets in and the plant perishes. The maggot, when full grown, is about a third of an inch long, is whitish, legless, tapering to the head and blunt at the tail, which has short, teeth-like points at the margin. When its growth is complete the maggot enters the earth and changes to a reddish, brown pupa, with a few black spots at the head and short teeth at the tail. In two or three weeks the flies come out and lay eggs for another crop, and successive generations are produced until November, after which time the pupæ remain in the ground unhatched until spring. Cabbages when attacked by the maggot show by a drooping of their leaves and by a change in color that something is wrong. The application of clear lime water, made as soon as the presence of the maggot is detected, has been found useful. As the maggot enters the ground close to the plant, and goes down but a short distance, it is recommended to draw the earth from around the root, with the pupæ in it, and destroy them by heat or deep burial. But such measures as these can only be practicable in the garden. On a large scale relief can only be had by a change of crop, occupying the land with beans, grain, or some other crop, upon which the parent fly will not deposit her eggs.

Another species is known as the Root-eating Fly (*A. radicum*), the maggots of which are found in cabbages and turnips in England. These very closely resemble the mag-

gots of the preceding, but are of a more ochre-like color. The perfect fly is in color black and gray. This insect has not yet been noticed in this country, but curiously enough a maggot which is very destructive to the eggs of the locust, that plague of the far West, was found to be the larvæ of a fly so closely resembling this European Root-eating Fly that Professor Tiley has described it as a variety of this species.

Though our potato crop has already a sufficient number of enemies, there is a possibility that one more may be introduced. In England the maggot of another species of *Anthomyia* (*A. tuberosæ*) feeds upon the potato.—*American Agriculturist*.

ICE IN THE DAIRY MUST GO.

There has long been a difference of opinion among butter experts as to the propriety of low cooling for the best welfare of butter, many believing that it was better not to carry the refrigerators below sixty degrees, while others have seemed to think the lowest cooling possible, and keep above freezing the better. The latter extreme opinion appears to be giving, especially with some of the better class of workmen. It is found by a comparison of results that the best butter is not made where the most cooling is done. In speaking of this matter a few days ago with Messrs. Burrell & Whitman, of Little Falls, the senior partner remarked that they operated five creameries, and that the one in which the least cooling was done turned out the best butter, and the one which cooled the most the poorest; and that the butter in the others was graded between them according to the grade of cooling, though it was fairly good in all of them. This is but a sample of what we often hear from the lips of others of our best butter makers. Milk fats are not in their best state for making butter when the milk is first drawn. They are improved by changes which they undergo after the milk comes into the hands of the dairyman. Much refrigerator retards these changes and modifies them unfavorably. They certainly go on much better at sixty degrees than at fifty and below. Butter made from cream raised at sixty degrees keeps better than when made of cream raised at forty-five or lower.

Sudden and extreme changes in milk, cream or butter injure keeping. The same is true with iced meat. If two pieces of meat are taken from the same animal, and one placed in the air at sixty degrees and the other on ice for three hours, and then placed by the side of the one which has been kept at sixty degrees. The earlier destruction of the chilled meat is due not so much to the sudden or severe change it undergoes as to the infection it gets in its cold state. As soon as it is chilled much below the surrounding air it begins to become wet with dew. As the warm air by contact with cold meat becomes cooled, it condenses, and being unable to hold in its condensed state, the expelled moisture falls in dew on the meat, and the impurities and infecting germs which the air usually contains go with it and lodge on the meat, which becomes thus loaded with infection. As soon as the meat is warmed up to a temperature at which the germs can grow, they at once develop and cause decomposition. Milk, cream

and butter chilled with ice load up with impurities and infection from organic germs in the air the same as the meat on ice, and their durability and their quality are affected by the infection more than by the chilling.

In creameries the chief injury is done to the cream, which is very commonly covered with a coat of dew that is always very foul and fatal to the good keeping of the butter it gets mingled with. A good many observing creamery men are becoming aware that ice in open and cold setting is the cause of a great deal of mischief to the butter, and only use it because of its great convenience. If in submerging milk, injury from atmospheric condensations are pretty much avoided, the use of ice cuts off all maturity of cream, at least all in the right direction, and finally leaves it in a somewhat deteriorated condition. Were it not for the speed in creaming, and the saving of labor it occasions, it would soon go out of use, so many are becoming satisfied that butter from ice-cooled milk and cream can not compete with that made without such chilling. From these considerations the probability is that the use of ice in the dairy will continue to become less and less in favor and less used, till the centrifuge is better perfected and comes into general use, and creams milk while warm and obviates the necessity for cool cooling. Then ice in the dairy "must go."—*Prof. L. B. Arnold, in New York Tribune.*

AMERICAN WONDERS.

The greatest cataract in the world is the Falls of Niagara, where the water from the great upper lakes forms a river of three-quarters of a mile in width, and then, being suddenly contracted, plunges over the rocks in great columns, to the depth of one hundred and seventy feet each.

The greatest cave in the world is the Mammoth Cave in Kentucky, where one can make a voyage on the waters of a subterranean river, and catch fish without eyes.

The greatest river in the world is the Mississippi, four thousand one hundred miles long.

The largest valley in the world is the valley of the Mississippi. It contains five hundred thousand square miles, and is one of the most fertile regions of the globe.

The largest lake in the world is Lake Superior, which is truly an island sea, being four hundred and thirty miles long, and very deep.

The longest railroad is the Pacific Railroad, over three thousand miles in length.

The greatest natural bridge in the world is the Natural Bridge of Cedar Creek, in Virginia. It extends across a chasm eighty feet in width and two hundred and fifty feet in depth, at the bottom of which the creek flows.

The greatest mass of solid iron in the world is the great Iron Mountain in Missouri. It is three hundred and fifty feet high, and two miles in circuit.

The largest deposits of anthracite coal in the world are in Pennsylvania, the mines of which supply the market with millions of tons annually.

CURING CHEESE.

A cheese maker in Ohio states his experience in curing cheese as follows: "I have

been somewhat interested in your articles on curing cheese in the boxes. We have a room in the basement of the factory, lathed and plastered, with stone wall on two sides and a floor. We find cheese loses less in weight and has a much better flavor when cured in it than when cured in a room up-stairs."

The experience above stated in regard to curing cheese in upper rooms and basements has been corroborated scores of times in our visits to cheese factories. It is the rule, in fact the cheese in upper rooms dries out much more and cures less perfectly than in the closer apartments and damper air of rooms partly underground. The temperature in basements, built as above described, fluctuates much less than in upper rooms, a circumstance which greatly enhances the value of lower rooms for curing cheese. Much variation in temperature always detracts from flavor. Every rise and fall in the warmth of the room in which cheese is curing warps and impairs the development of flavor, and causes an extra shrinkage in weight. Moisture is essential to rapid curing and to the formation of flavor. Dry air and much light are objectionable. We have found the best curing in dark, close rooms, and as damp as they could be on account of mould. It was this that led to our little experiment in curing cheese in boxes, which, by the way, has proved a perfect success. We have just cut one of the cheeses so cured, now about six months old, and find the curing perfect—all that could be desired—and it was so considered by an expert who happened to be present when it was cut. Though skimmed at the rate of a pound of butter from fifty pounds of milk, the flavor is perfectly clean and quite full and nutty like that of a well-made, whole-milk cheese, and would easily be mistaken for such by the average consumer. It is greatly superior to those cured on the open shelf. The result has proved so favorable, we propose to experiment further another year, and hope others will do so too.—*National Live Stock Journal.*

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

On Monday afternoon, September 1, 1884, the Lancaster County Agricultural Society held its regular monthly meeting to their room, above the old post-office building.

The following members were present: H. M. Engle, Marietta; Calvin Cooper, Bird-in-Hand; Dr. J. P. Wickersham, F. R. Dillenderfer, city; Johnson Miller, Warwick; James Wood, Fulton; W. H. Brosine, Drumore; M. D. Kendig, Manor; John C. Linville, Salisbury; K. B. Patterson, Colerain; William Wright, Fulton; Levi S. Reist, Manheim.

In the absence of the President, Vice President Engle took the chair.

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

Mr. Cooper, from the committee on the late Farmers' Institute, asked further time to make their report.

Crop Reports.

Joseph F. Witmer reported a good yield of grain. The corn crop will be good. Apples are falling. Potatoes are a full crop. Oats are better than for a number of years. He reported a yield of 501 bushels of wheat from ten acres.

Johnson Miller said the corn crop would be an excellent one. The tobacco crop is the finest in years. Potatoes will be a moderate crop. Wheat was also a heavy crop. A great deal of second crop is being made.

James Wood said the wheat is good. He will have 600 bushels of wheat off a field that gave him 60 bushels in 1837. Wheat seems to be of an especial good quality this year.

J. C. Linville noticed that from the Gap eastward the corn is poor. He cannot account for it. Grass is usually good this fall; clover is well set. Plowing is not half done so far, the farmers had so much tobacco to cut that they could not get at their plowing.

M. D. Kendig said corn in Manor was a good crop; so was wheat. Tobacco is mostly harvested, the Havana seed is of good size and quality. Farmers are looking for stock cattle, as many will be fed as having any previous year, perhaps more. The grass is good and abundant.

Henry M. Engle reported the rainfall for June at 5.15-16 inches; for July 4.9-16 inches, and for August 1.6-16 inches.

W. H. Brosine said in Drumore the crops were good generally. The large yield of wheat will make up for the low price.

Johnson Miller said it has been customary for this society to send delegates to neighboring county fairs, and that an invitation had been sent by the State Fair at Philadelphia. He, therefore, moved a committee of three be appointed to go there. Carried. The chairman appointed Messrs. Johnson Miller, Joseph F. Witmer and M. D. Kendig.

On motion the society adjourned to meet on the first Monday in October.

FULTON FARMERS' CLUB.

The August meeting of the Fulton Farmers' Club was held at the residence of Day Wood, in Fulton township. The following members were in attendance: Joseph R. Blackburn, Day Wood, E. H. Haines, Lindley King, Marshall Nesbit, C. C. Cauffman, Solomon L. Gregg and Wm. King, besides a number of visitors.

Exhibitions of agricultural and horticultural specimens being in order, Day Wood exhibited Duchess of Oldenburg (or Orinburg) apple, which he says is a good bearer and stays well on the trees; also, sweet blough apple.

Melissa Gregg exhibited Duchess of Orinburg, Garetton's Early, and Summer Rambo apples, the latter being green; will ripen in about six weeks; also, Bloodgood pear. Lizzie Wood, a radish of extraordinary size. Neal Hamilton, silk cocoons. Wm. King, a twig of an apple tree covered with scales.

E. H. Haines asked what was the right thing to do when you are breaking oxen, and they get sulen and lie down and won't get up for anything.

M. Nesbit said the right way was not to let them get down. Just yoke them and go away and don't try to move them until they get used to being yoked. It is a bad idea to try to drive them.

M. Nesbit: Is it best to let the grass and weeds grow, or cut and lie them, when the ground is to be plowed next spring?

E. H. Haines thought that there was no advantage in cutting other than keeping the weeds from going to seed. It would be best to turn the cattle out.

Day Wood would keep the weeds from going to seed if noxious.

S. L. Gregg asked if there was any advantage in a wheel to a plow.

E. H. Haines: It depends on the plow. If it runs too deep with a new point a wheel is the best thing to regulate it.

M. Nesbit: With no wheel the horses carry the weight of the plow.

Others thought a wheel of great use, especially when plowing in hard ground, when the chains should be let out and the wheel depended on to keep the plow from running too deep.

S. L. Gregg was hard to convince. He had a Roland chilled plow that would run as well without

a wheel. A plow is not running right when it is kept out of the ground with a wheel. When it is knocked out of the ground the wheel prevents it from going in again. It is also bad on rough ground.

Rebecca D. King: Is there any way to bleach celery without banking with earth?

Day Wood thought that earth was as plenty and cheap as anything else.

Neal Hamblin: The white plume celery does not need earthing up. It will bleach itself by its compact growth.

J. J. Carter takes a box and sinks it in the ground; then packs the celery tightly in it. It bleaches very nicely. A cover is put on the box and cornfodder piled over it, so that it can be got at in winter.

Joseph R. Blackburn had done the same thing with a box in the cellar and kept moist. It did well.

S. L. Gregg asked if what is called wolf teeth injure horses' eyes.

E. H. Haines did not believe that they do, although the belief that they are injurious is very general. Scientific men say that there is nothing in it.

S. L. Gregg had a horse with wolf teeth. His eyes appear to be good, but he shy at objects along the road.

J. R. Blackburn once had two horses with wolf teeth; he took them away to have them pulled. The man who did the work that in one of the horses the teeth were too small to pull, so they were left in. They were never pulled, and the horse did not go blind; the other, whose teeth were pulled, did.

Wm. King had a horse that lived to be twenty-seven years old, with wolf teeth. Always had good eyes.

S. L. Gregg distributed a copy of the reports of the State Board of Agriculture for 1883 to each member of the club. Presented by Representative Brosius.

The Afternoon Session.

After dinner the club visited the farm and live stock of the host, and, after again convening in the evening, a few criticisms were given.

Day Wood then read a part of an address by Wm. Walter Phelps, on the relation of the Tariff to Agriculture.

E. H. Haines read an article on the cultivation of corn. Sallie Hamilton read "The Housekeeper's Tragedy." Hattie Wood recited "Little Brown Hands."

The committee appointed at last meeting to prepare resolutions of respect to the late Martha Brown produced the following tribute to her memory, which was adopted by the club:

Having lost by death one of our most worthy and highly esteemed members, Martha Brown, we feel that a tribute to her memory is due. In very early life she manifested true wisdom, evincing to all who knew her that she was walking near her Heavenly Guide, and truly we believe she has entered her eternal home as a good and faithful servant. We feel that the community in which she lived has lost a good example and her husband a Christian companion, one whose cheerful presence and untiring patience will long be remembered. She was ever ready to impart sweet counsel and encouragement to the weary and heavy laden and a mother to the children that were entrusted to her care. We tender our deepest sympathy to her family and many friends and trust the light in which she walked may light us to truer and nobler lives, the end of which is peace.

Adjourned to meet at the residence of E. H. Haines, September 6.

POULTRY ASSOCIATION.

The Lancaster County Poultry Society held its regular monthly meeting on Monday evening, September 1, at 8 o'clock.

The following members were present: Harry A. Schroyer, President; F. R. Diffenderfer, J. B. Lichty, Martha Rudy, John Schum, Chas. Lippold and Wm. Schenberger.

The corresponding secretary was instructed to get up a catalogue for the poultry show; to write to different breeders and solicit advertisements for the catalogue at certain rates.

On motion the society agreed to secure judges for the poultry show.

After discussing arrangements to pay for gas bills the society adjourned.

LANCASTER COUNTY FAIR ASSOCIATION.

PREMIUM LIST.

The judges in nearly all the classes finished their work Wednesday, while some of them did not get done until Thursday morning. The result is as follows:

Class 1—Stallions, Mares, Colts, etc.

Best stallion, 6 years and up, Joseph R. Burkholder, farmer, Lancaster county; second best, Roberts, Durnall & Hicks, West Chester.

Best stallion, between 4 and 6 years, Jeremiah Roth, Allentown.

Best stallion, under 4 years, John Kenzig, Willow Street; second best, Henry K. Graybill, Bearville.

Best brood mare, John Kenzig, Willow Street; second best, John Styer, Churchtown.

Best mare colt, between 2 and 3 years, M. H. Wenger, Wheatland Mills.

Best colt, under one year, John Kenzig, Willow Street.

Class No. 2—Stallions, Mares and Colts for Quick Draughts.

Best stallion, 6 years and up, Edward MacGonigle, city; second best, Franklin Sutton, city.

Best stallion between 4 and 6 years, Hiram L. Garber, Columbia; second best, Hiram L. Garber.

Best stallion under 4 years, John Sides, city; second best, Amos Ziegler, Shock's Mills.

Best brood mare, John L. Gingrich, Batbridge; second best, Hiram L. Garber, Columbia.

Best horse colt between 3 and 4 years, John L. Hoover, Mountville; second best, William Grosh, Neffville.

Best mare colt between 2 and 3 years, John L. Gingrich; second best, Eli Hershey, Bainbridge.

Best mare colt between 1 and 2 years, M. Ziegler, Shock's Mills; second best, M. Ziegler.

Class 3—Stallions, Mares, Jacks and Mules.

Best pair carriage horse and mare, Lawrence Knapp, city; second best, John L. Gingrich.

Best horse and mare for single harness, C. Musselman, Witmers; second best, H. L. Schaefer, Farmersville.

Best saddle stallion and gelding, J. R. Burkholder, Farmersville.

Fastest walking horse and mare, C. Musselman, Farmersville.

Best jack, H. A. Brackbill, Landisville.

Best team of mules, not less than four, S. B. Cameron, Marietta.

Best pony, L. Sondheimer, city.

Class 4—Durham or Short Horns.

Best bull, 3 three years old and upwards, John Roth, Allentown.

Best 3-year old cow, S. B. Cameron; second best, S. B. Cameron.

Class 5—Devons.

Best bull, 3 years old and up, John Roth, Allentown.

Best bull, between 2 and 3 years; Y. D. Schreibe, Coplay, Pa.

Class 6—Alderneys and Jerseys.

Best herd of nine, H. C. Musser, Schock's Mills.

Best bull, 3 years old, S. B. Cameron; second best, J. Roth.

Best bull between 1 and 2 years, M. H. H. Patterson, Safe Harbor.

Best bull between 1 and 2 years, J. Roth; second best, S. B. Cameron.

Best bull calf under 12 months, S. B. Cameron; second best bull under 12 months, M. L. Hoover, city.

Best cow three years and up, J. Roth; second best, S. B. Cameron.

Best cow or heifer between 2 and 3 years, B. J. McGinnis, city.

Best heifer between 1 and 2 years, J. Roth; second best, Thomas Baumgardner, city.

Best heifer calf under 12 months, S. B. Cameron.

Class 7—Guernseys.

Best herd of nine, M. L. Greider, Mt. Joy.

Best bull three years and up, A. S. Shimer, Redlington, Pa.

Best bull between two and three years, M. L. Greider, Mt. Joy.

Second best, A. S. Shimer, Redlington.

Best bull calf under 12 months, A. S. Shimer.

Second best, M. L. Greider.

Best cow, 3 years and up, M. L. Greider.

Class 8—Holstein or Friesian Cattle.

Best bull, 3 years and up, A. S. Shimer, Redlington, Pa.

Best bull between 2 and 3 years, J. G. Paxton & Sons, Houstonville, Pa.; second best, Roberts, Durnall & Hicks, West Chester.

Best bull, between 1 and 2 years, A. S. Shimer, Redlington; second best, the same.

Best bull calf under 12 months, Roberts, Durnall & Hicks, West Chester; second best, W. W. Grosh, Neffville.

Best cow, 3 years old, Roberts, Durnall & Hicks, West Chester; second best, the same.

Best cow or heifer, between 2 and 3 years—first premium, Roberts, Durnall & Hicks, West Chester; second, W. W. Grosh, Neffville.

Best heifer between 1 and 2 years, Roberts, Durnall & Hicks, West Chester; second best, the same.

Ayrshires.

Best bull 3 years old; best bull calf under 12 months, best cow 3 years; best cow or heifer between 2 and 3 years and second best; best heifer between 1 and 2 years, all to A. S. Shimer, Redlington, Pa.

Swiss Cattle.

Best bull 3 years; best bull calf under 1 year; best heifer calf; best cow 3 years; all to A. S. Shimer, Redlington, Pa.

Class 9—Natives and Grades—Working Oxen and Fat Cattle.

Best bull 3 years old, Jere. Roth, Allentown.

Best bull between 1 and 2 years, Ernest Shaeffer, Reigart's Landing.

Best bull calf, A. S. Shimer, Redlington.

Best heifer calf, Simon B. Cameron, Marietta.

Best cow or heifer, between 1 and 2 years, Mrs. H. H. Patterson, Safe Harbor; second best, the same.

Best working oxen, M. H. Wenger, Wheatland Mills.

Fat Cattle.

Best fat steer, Henry Dorr; second best, the same. Class 10—Sheep.

HAMPSHIRE—Best buck, second best buck, best pen of ewes, best pen of lambs—all to A. S. Shimer, Redlington, Lehigh county.

OXFORD DOWNS—Best buck, second best buck, best pen of ewes, second best pen of ewes and best pen of lambs, to Jere. Roth, of Allentown.

SOUTH DOWN—Best pen of lambs, S. B. Cameron, Marietta.

SPANISH MERINO—Best buck, best pen of ewes, to J. G. Paxton & Son, Houstonville.

BLACK TOP MERINO—Best buck, best ewes, best pen of lambs, all to J. G. Paxton & Sons, Houstonville.

NATIVE OR MIXED SHEEP—Best buck; best pen of ewes, to John L. Gingrich, Bainbridge; best pen of lambs, Simon B. Cameron, Marietta.

Class 11—Hogs.

CHESTER WHITES—Best boar, one year old, M. L. Greider, Mt. Joy; best breeding sow, one year old, M. L. Greider, Mt. Joy; second best, M. L. Greider, Marietta. Best lot of pigs, M. L. Greider, Mt. Joy.

POLAND CHINA—Best boar, 1 year old, Mrs. H. H. Patterson, Safe Harbor. Best breeding sow, 1 year old, to same.

BERKSHIRE—Best boar over two years, John Ken-

dig, Willow Street. Best breeding sow over two years' and second best, to same.

YORKSHIRES—Best boar over two years; best boar one year; best breeding sow over two years; second best breeding sow; best and second best lot of pigs, to J. G. Paxton & Sons, Houtonsville.

Best breeding sow and best lot of pigs to H. C. Musser, Schock's Mills.

JERSEY REDS—Best boar over one year; best breeding sow over one year, and best lot of pigs, all to Amos Ziegler, Schock's Mills. Second best boar over one year and second best breeding sow over one year to P. C. Hiller, Conestoga.

Class 12—Dogs.

Best English setter, H. B. Vondersmith, city; second best, Thos. P. Fordney, city.

Best English setter bitch and second best; English setter puppies and second best; Gordon setters and second best; best Gordon setter puppies and second best; all to H. B. Vondersmith.

POINTERS—Best bitch and second best bitch, best puppies and second best pups, to Jos. R. Trissler, city.

Best Great Dane dog, Calvin Eshleman, city.

Best coach dog, Park K. Frain, city.

Best White French poodle dog, George C. Liller, city.

Best Beagles, first premium, A. C. Krueger, Wrightsville; second best, M. M. Nissley, Elizabethtown.

Best Fox Terriers, J. H. Shepherd, Philadelphia.

Best Collies, John F. Heinisch, city, for best dog; best bitches, first and second premium to Simon B. Cameron, Marietta.

Highland Shepherd, W. D. Madden, city.

Class 13 Chickens.

Best coop of chickens, Samuel G. Engle, Marietta. American Dominics, C. S. Greider, Mount Joy. Light Brahmas, Dr. I. H. Mayer, Willow Street. Partridge Cochins, John S. Hoover, Mountville. Black Cochins, Samuel G. Engle, Marietta. Buff Cochins and Plymouth Rocks, M. B. Weidler, of Bareville.

White Cochins, L. W. Knapp, city.

Wyandotts, Harry A. Scroyer, city.

Black Hamburgs, George C. Liller, city.

Black Spanish, John Grosh, Landis Valley.

White Leghorns, Martin Rudy, city.

Brown Leghorns, Harry Stauffer, Bareville.

Colored Dorkings, E. H. Tshudy, Litz.

White, Golden and Silver Polish, three varieties, Wm. A. Schoenberger, city.

Best Black Red Games, Miss Mary C. Lichty, city.

Best Golden Seabright Bantams, S. C. Greider, Mount Joy.

Silver Seabright Bantams, Samuel G. Engle, Marietta.

Black Braested Red Game Bantams, Charles Lippold, city.

Rose Comb Bantams, Chas. E. Long, city.

Black African Bantams, Chas. E. Long, city.

Ducks.

Best coops of ducks, John S. Hoover, Mountville.

Best colored Muscovy, S. B. Cameron, Marietta.

Best Pekin ducks, John Grosh, Landis Valley.

Geese.

Best Embden geese, Mrs. H. H. Patterson, Safe Harbor.

Best Bronze turkeys, M. L. Greider, Mount Joy.

Best turkey gobbler, Samuel G. Engle, Marietta.

Pigeons, Etc.

Best and largest collection—Schum & Hagans, city.

Best pair of punters, C. S. Greider, Mt. Joy.

Best pair of carriers, and best pair of tumbler, and best pair of breasters, and best pair of Moreheads, and best pair of swallows, and best pair of ice pigeons, best red tail turbot, best yellow snells, best Birmingham rollers, best red swallows, all to Schum & Hagans, city.

Best pair of fantails, best black bars, best blue English owls, best blue African owls, best black trumpeters, all to Charles Lippold.

Best yellow fantails, best blue Antwerps, best mottled trumpeters, to C. S. Greider, Mt. Joy.

Best blue checkered Antwerps, to B. M. Bowman, city.

Best Guinea fowls to Schum & Hagans, city.

Best coop of Guinea pigs to Benj. Rabter & Brother, city.

Best cage of canaries and best single canary, Chas. Lippold, city.

Best incubator and brooder, Success Hatcher Co., city.

Class 14—Grain, Flour, etc.

Best barrel family flour, George Levan & Son, city.

Best barrel extra flour, best barrel superfine, best barrel rye, best display of flour in sacks all to M. F. Stelgerwalt, city.

Best bushel white wheat, best bushel amber wheat, best bushel yellow corn, best bushel oats, all to M. L. Greider, Mount Joy.

Best bushel red wheat, Geo. Shiffer, Willow Street.

Best bushel oats, M. L. Greider, Mt. Joy.

Best timothy seed, Simon B. Cameron, Marietta.

Class 15—Vegetables.

Best lima beans, best rooted turnips, best two heads of cabbage, best early horn carrots, best round purple egg plant, best horse radish, best leeks, best okra, best parsnips, best salsify, best home raised sweet potatoes, best Trophy tomatoes, best Acme tomatoes, best 12 specimens of any variety all to John Sterline, Columbia.

Best long blood beets, best red beets, best flat Dutch cabbage, best drum head cabbage, all to Wm. Smith, city.

Best single head of cabbage, Casper Hiller & Son, Conestoga.

Best long orange carrots, best intermediate and second best intermediate carrots, best bushel Burbank potatoes all to J. B. Garman, Leacock.

Best sweet corn, Jacob Hildebrand, Strasburg; best king of the early potatoes to the same.

Best cucumbers, Albert M. Herr, city; best snowflake potatoes and best Boston marrow squash, best cantaloupe, all to the same.

Best onions, M. B. Herr, Wheatland Mills.

Best bell or sweet peppers, best long cayenne peppers, best Paragon tomatoes, all to M. B. Herr, Wheatland Mills.

Best half bushel Mercer potatoes, Adam Lefevre, Lampeter Square.

Best half bushel of Early Rose, J. F. Hess, city.

Best Peasants potatoes, H. B. Haversick, city.

Best White Elephant potatoes, Mrs. Dr. J. W. Nevin, Cernarvon Place.

Best pumpkin, A. J. Steiman, city.

Class 16—Fruits.

APPLES—Best and largest collection of apples, best York Imperials, best Fallwaters, best Tompkins County, best Greenings, best Maiden's Blush, best Twenty Ounce, best Vandever, best Pennock's, all to Calvin Cooper & Son, of Bird-in-Hand.

Best three specimens of apples, best Northern Spy, best Cole, best Pippins, best Russets, best Gravensteins, best Carthoune, best Romanite, best Marshall's Mammoth, to M. B. Herr, Wheatland Mills.

Second best varieties of ten apples, four specimens each; best Lady Fingers, to John Keady, Salunga.

Best six Baldwins, best six Bellefleurs, best Pound, all to John Sterling, Columbia.

Best Seek-no-further, best Wine Saps, best plate of any other variety, to Adam Keller, city.

Best Harrison's, None Such and best Cider, to A. S. Shlmer, Redington.

Best Smokehouse and best New Seedling, to Dr. I. H. Mayer, Willow Street.

Pears.

Best and largest collection, best Buere Diehl, best dish of any other variety, all to Wm. Weidle, city.

Second best collection of pears, best Buere Bose, best Seckle, best Duchesse, best Buere d'Anjou, best Sheldon, best Belle Lucrative, best Flemish Beauty, all to Daniel Smeych, city.

Best Swan's Orange, C. Cooper, Bird-in-Hand.

Best assorted basket or dish, best Washington pears, best Doyenne Boussock and best Urbinato, all to Charles E. Long, city.

Best Bartlets, Hopkins L. Henderson, city.

Best Louise Bone and best Vicar of Wakefield Chas. Lippold, city.

Best Buere Hardy, M. B. Herr, Wheatland Mills Plums.

Best dish of plums, Daniel Smeych, city.

Second best dish, Jacob Hildebrand, Strasburg.

Quinces.

Best display of quinces, William Weidle, city.

Best new seedling quince, Margaret Ziegler, city.

Peaches.

Best and greatest choice varieties, Hiller & Rush, Willow Street; second best, Daniel Smeych, city.

Best three varieties, Francis Keady, city; second best, William Weidle, city.

Best assorted dish or basket of peaches, William Henderson, city.

Best new seedling, Hiller & Rush, Willow Street.

Grapes.

Best and largest collection, John Keady, Salunga, second best, Daniel Smeych, city.

Best Concord, Adam Keller, city. Best Hartford and best Rogers, all the same.

Best Delaware and best Isabella, M. B. Herr, Wheatland Mills.

Best Diana, Francis Keady, city.

Best Catawba, Wm. Weidle, city.

Best Clinton, Dr. I. H. Mayer, Willow Street.

Best grapes of many other variety, M. B. Herr, Wheatland Mills.

Class 18—Wines, Tobacco and Cigars.

Best grape and best cherry wines, Adam Keller, city.

Best currant wine, John Hortling, city.

Best blackberry wine, Francis Keady, city.

Best elderberry wine, Elizabeth Madegan, city.

Best lot of tobacco, J. F. Hess, city.

Best lot of cigars, James Prangley, city.

Class 19—Hats, Boots and Clothing.

Best hats and caps, W. D. Stauffer & Co., city.

Best made men's boots and shoes, Wm. H. Gaat, city; second best, Shanb & Burns.

Best display of gentlemen's furnishing goods, E. J. Erisman, city; second best to Burger & Sutton.

Class 20—Paintings and Penmanship, Etc.

Best display of drawings and paintings, Mrs. J. W. Denlinger, city.

Best oil painting by a native of the city, J. W. Deitchler, city.

Best water color, Mary A. Ruth, city.

Best crayon and pencil drawing, Alice Dunlap, city.

Best display of photographs, J. E. Rote, city.

Best display of marble work, Lewis Haldy, city.

Best display of penmanship, H. C. Weidler, city.

Best paper hangings, J. B. Martin & Co., city.

Best display of Mechanical drawings, C. Emlen Urban, city.

Diplomas for oil paintings to Mamie A. Rutt, city, and George A. Singlerly, Philadelphia.

Class 21—Carriages and Harness

Best two-horse carriage, Elderly & Co., also best one-horse carriage and best pheon.

Best buggy and best trotting wagon to Norbeck & Miley.

Best hunting wagon and best survey wagon, to Philip Doersom.

Best single seat carriage harness, best riding saddle, best riding bridle, best lap blankets, best horse blankets, best trunks and best satchels to S. Miley.

Class 22—Stoves.

Best cook stove, best ornamental parlor stove and second best, all to Geo. M. Steiman & Co., city.

Best portable range, second best cook stove, second best variety iron furniture, all to Flink & Breneman, city.

Best stationary furnace, John Best & son, city.

Second best fireplace heater and second best double heater, A. C. Kepler, city.

Best sample iron railing, Rogers Fence Co., S. R. Miller, agent.

Class 23—Cabinet Ware.

Best extension dining table, best centre table, best parlor suit, best side board and best chamber suit, all to J. M. Keiper, city.

Class 24, 25 and 26 Farming Implements and Machines.

Best reaper with self rake and blinder, Eppler & Hoffer, Elizabethtown.

Best reaper, W. D. Sprecher & Son, city.

Best mowmower, Eppler & Hoffer, Elizabethtown.

Best threshing machine, W. Andes & Son, Leacock.

Best threshing machine with separator and winnower, Geysar Manufacturing Company, city.

Best corn sheller, Buch & Heiss, Elizabethtown.

Best corn sheller, hand power, E. O. Henry, city.

Best corn and cob crusher, W. D. Sprecher & Son.

Best portable steam engine, John Best & Son.

Best traction engine, Geysar Manufacturing Company.

Best wind mill, Eppler & Hoffer.

Best creamery machinery, J. S. Connelly, Manheim.

Best corn stalk cutter, F. O. Henry.

Second best corn stalk cutter, W. D. Sprecher & Son.

Best hay and straw cutter, John Laughlin, York.

Second best hay and straw cutter, Jacob F. Bender, Columbia.

Best grain drill, A. G. Foust, Strasburg.

Best grain drill with phosphate attachments, W. D. Sprecher & Son.

Best implement for lifting hay, Sprout & Waldron, Muncy, Pa.

Best hay tedder, Eppler & Hoffer, Elizabethtown.

Best horse rake, Springfield Manufacturing Company, Springfield, Ohio.

Best chopping mill, W. Andes & Son, Leacock.

Best corn planter, John Keeler, city.

Best farm wagon, A. B. Landis, Mt. Joy.

Best 3-horse plow, E. O. Henry, city.

Second best 3-horse plow, George Bard, Mechanicsburg.

Best 2-horse plow, W. D. Sprecher & Son, city.

Best sub-soil plow, Jacob F. Bender, Columbia.

Best riding plow, Geo. Bard, Leacock.

Best wheelbarrow, A. S. Diether, Millersville.

Best spring harrow, L. Auxer, city.

Best harrow, John Keeler, city.

Best road and track scraper, David Smith, Thompsonston.

Best potato digger, W. D. Sprecher & Son, city.

Best corn cultivator, Eppler & Hoffer, Elizabethtown.

Best roller, L. Auxer, city.

Best farm gate, Israel L. Landis, city.

Best farm fence, Israel L. Landis, city.

Best upright engine, Carlisle Manufacturing Company, Carlisle.

Class 27—Farm and Household Implements.

Best arrangement for raising water, Eppler & Hoffer, Elizabethtown.

Best portable cider mill and press, John Keeler, city; second best, W. D. Sprecher & Son, city.

Best variety of cooper work, Walden & Sprout, Muncy, Pa.

Best churn, best butter worker, best milk strainer, all to J. S. Connelly, Manheim.

Best washing machine, Keystone Company, city; second best, J. B. Herschok, city.

Best axes, George M. Keiser, Bird-in-Hand.

Class 28—Miscellaneous Implements.

Weather strips, H. Nolly, Jr., city.

Best model of wind engine, David H. Bausman, city.

Best fan blowers and best portable engines, American Blower and Forge Company, city.

Best portable heater and best re-sweater, Jacob Poose, city.

Best drill, James A. Thompson.

Best punch, Joseph Campbell, Middletown.

Class 29—Carpets, Woods, Etc.

Best outlined apron, Mrs. J. Reinsteln, city.

Best wool carpeting, H. S. Shirk, city.

Best case dyed goods, Harnish & Co., city; second best, Henry Wiebush, city.

Best rag carpets, Lancaster County Prison.

Best double coverlet, best home made blankets, best home made woolen yarn, Philip Schum, Son & Co.

Best home made linen, Francis Kready, city; second best, A. K. Bowers, city.

Best linen tablecloth, A. M. Kline, Bainbridge.

Best embroidered linen napkins, Miss Lulu B. Long, city.

Best home made thread, Anna M. Weldler, Bareville.

Best home made hearth rug, Mrs. E. M. Allen, city.

Best door rug, Miss Mary H. Long, city.

Best carpet rag rug and best home made hard soap, A. M. Dougherty, Bainbridge.

Class 30—Quilts, Stockings, Etc.

Best white croquet quilt, and best Japanese table, Miss Mary H. Long, city.

Best fancy women knit stockings, best knit leggings, best cotton knit half hose, Mrs. Jacob Ehrhart, city.

Best silk knit stockings, E. M. Evans, Graeff's Landing, city.

Best cotton knit stockings, St. James' Orphanage, city.

Best pair woolen mittens, Mrs. Groff, Strasburg.

Best patchwork silk quilt, Miss Kauffman, city; second best, Mrs. J. W. F. Swift, city.

Best counterpane, Philip Schum, Son & Co., second best, John Zuercher, city.

Best patchwork calico quilt, A. M. Dougherty, Bainbridge; second best, E. B. and Grace Jordan, city.

Best Japanese quilt, Mrs. E. A. MacCarter, city; second best, Miss Mary H. Long, city.

Class 31—Muslin, Embroidery, etc.

Best embroidered band and sleeves of undergarments, and best case of embroidery, Lizzie Stoehr, city.

Best child's dress, Mrs. J. T. Turner.

Best embroidered handkerchief, and best dress, Mrs. J. R. Royer, city.

Best embroidered pillow shams and best skirt, Miss Lulu B. Long, city.

Best shawl, Emma Rahter, city; second best, Kate Hayes, York.

Best cloak, J. W. Detehler, city.

Best embroidered table cover, Miss Bertha Edgerley, city; second best, E. S. Gensemer, city.

Second best embroidered screen, Mrs. J. T. Turner, city.

Second best lambrèques, Alice Dunlap, city.

Second best antique lace, Josephine Wright, city.

Best display of feather-edged lace and best tily, Mrs. John R. Kauffman, city.

Best Honiton lace, Mrs. J. W. Denlinger, city.

Best and largest variety of laces, Mrs. Sophie Smith, city.

Class 33—Worsted Work.

Best variety, Miss Mary Finger, city; second best, Mrs. Jacob Ehrhart, city, who also had best worked chair, best toilet cushion, best croquet tily, best knit sofa cushion, best worsted embroidered sham towel and best infant's cap.

Best Ottoman cover, Mrs. S. A. Gibbs, city; second best, Mrs. J. W. Denlinger, city.

Best sofa cushion, M. A. Sigle, Groff's store.

Best slipper on canvas, best infant's afghan, and best croquet sofa cushion, Miss J. Reinsteln, city.

Best worsted and bed work, best lamp mats, best croquet shawl, best ornamental shell work, Mrs. J. T. Turner, city.

Best croquet carriage afghan, S. K. Eshleman, Leaman Place; second best, Mrs. J. R. Royer, city.

Second best infant's afghan, Mrs. George Leitbly, city.

Best knit afghan, Miss Mary H. Long, city.

Best crewel worked table cover, Kate Hayes, York.

Best worked piano cover, Miss Louisa A. Long, city.

Best display of fancy paper work, Miss Mary Jacobs.

Best display of wax flowers, Mrs. A. F. Spencer, city.

Best display of wax fruit, Irene Knight, city; second best, Mrs. Elizabeth Lebzelter, city.

Largest and best display of fancy work, A. D. Rohrer & Bro., city; second best, Miss J. Reinsteln, city.

Best Japanese arary jar, Miss Lulu B. Long, city.

Best hair flowers, Mrs. George Leitbly, city; second best, Miss Mary MacCarter, city.

Best display of millinery goods, E. Thomas, city; second best, New York & Paris millinery store, city.

Best display of spatter work, Mrs. C. M. Barr, city.

Best display of decorated pottery, Miss Carrie Breneman, city; second best, Mrs. Jacob Ehrhart, city, who has also the best card-board frames and best dried ferns and leaves.

Best display of hand painting on silk, Kate Hayes, York.

Best hand painted panel, Miss Lulu B. Long, city.

Class 35—Butter, Bread, Cakes, Etc.

Best home-made bread, Simon B. Cameron, Marl etta.

Best ice cream cake, best pound cake, best gold cake, best kisses; Nellie Wiant, city.

Best sponge cake, A. K. Bowers, city.

Best ginger cake, Mrs. Jacob Ehrhart, city.

Best cornstarch cake, Lizzie Stoehr, city.

Best two pounds creamery butter, Elmdale Creamery, Florin.

Class 38—Pickles.

Best pickled cucumbers, best pickled onions, best chow chow, Miss Clara L. Lichty, city.

Best pickled peppers, best pickled plums, and best pickled pears, Mary A. Rote, city.

Best pickled cantaloupes, H. S. Hershey, East Petersburg.

Best pickled peaches and best pickled cherries, Mary Braine, city.

Best pickled nasturtiums, Mrs. Geo. Wiant, city.

Best tomato catsup, Adam A. Keller, city.

Best cider vinegar, M. B. Herr, Wheatland Mills.

Class 39—Flowers.

Best collection of greenhouse plants, best variety of verbenas, best collection of German asters, best variety of geraniums, W. C. Pyfer, city.

Best variety roses, the best floral ornament, the best hand bouquet, the most beautifully arranged basket of flowers, best variety of fuschias, best hanging basket with growing plants and best dried flowers, A. D. Rohrer and Brother, city.

Best geranium, Isaac K. Mearig, Leacock.

Class 40—Miscellaneous Articles.

Best display of graining, E. Bookmyer, city.

Best display of jewelry, Aug. Rhoads, city.

Best display of blank books, H. L. Tront, city.

Best display of fertilizers, Lancaster Chemical Company.

Best display of barbers' furniture, J. Griendling's Sons, Philadelphia.

Best display of foreign curlottes, Sadie A. Hensel, city.

Best display of fancy soaps and laundry soaps, Mrs. H. Miller & Son, city.

Best display of druggists' samples, John B. Kauffman, city.

Best display of glassware and china, J. B. Martin & Co., city.

Best display of barbers' supplies, George C. Liller, city.

Best display of old fashioned furniture, August Reimuhl, city.

Best display of picture frames, Harry Smith, city.

Best display of slate mantles, Frank Janson & Bro., Columbia.

Best display of phosphate of lime, John Oakford, Oxford.

Best display of silk cocoons, and silk weaving and spinning, M. E. Hensel, city.

Best yeast, Fleischman's Yeast Company, New York.

Best tobacco plant, Harry C. Moore.

Best display of furs, Fred J. Scheuing, city.

- Best milking fish net, Lancaster county prison.
 Best case of files, A. F. Spencer, city.
 Best boat, Dr. S. T. Davis, city.
 Best dairy cabinet creamers, J. S. Connelly, Man-
 helm.
 Best force pump, best butcher knives and chisel,
 George M. Resser, Bird-in-Hand.
 Best carriage boxes, Henry Mellinger, city.
 Best fruit evaporator, A. G. Pfoutz, Strasburg.
 Best display of gas fixtures and of brass work,
 Flinn & Breuneman, city.
 Best display of oil lamps and globes, John P.
 Shaum, city.
 Best display of rubber belting, of leather belting
 and of mixed paints, A. C. Kepler, city.
 Best display of carriage wheels, iron troughs and
 grades, H. M. Powers, city.
 Best display of grave stones, Lewis Haldy & Son,
 city.
 Best display of spokes, hubs, &c., Philip Lebzelter
 & Co., city, who have also best cutter and cabinet.
 Best shafts, fellos, etc., B. F. Skoen, city.
 Best aquarium of fish, C. B. and H. M. H. Herr,
 Willow Street.

Best fret work, Mrs. W. O. Frailey, city
Diplomas Awarded.

The Judges of Agricultural Implements make
 special mention of and recommend diplomas to be
 awarded to the following:

- Bush & Heiser, Elizabethtown, best pump trough.
 J. H. Stauffer, Salunza, oil stores.
 Geo. Bard, Leacock, swivel or hillside plow.
 Geo. Bard, Leacock, combined treble plow.
 Eppler & Hoffer, champion pump.
 V. Andes & Sons, iron troughs.
 W. D. Sprecher & Son, economy plow.
 T. C. Seitzart, Pequea, iron farm wagon.
 W. D. Sprecher & Son, iron scoop.
 Eppler & Hoffer, Elizabethtown, grain fan.
 Jacob F. Bender, Columbia, stop cart.
 Jacob F. Bender, Columbia, dump cart.
 John Keeler, city, spring riding harrow.
 Carlisle Manufacturing Company, Carlisle,
 upright engine.
 Horse power thresher and separator, Sheaffer,
 Merkle & Co., Fleetwood.
 Economist mold press, W. D. Sprecher & Son.
 Cider mill and press, W. D. Sprecher & Son.
 Chopping machine, W. D. Sprecher & Son.
 Churn, E. O. Henry, city.

Premiums Omitted.

- Best butter, Mrs. Fannie Bushong, Bird-in-Hand.
 Best mare colt, between 3 and 4 years old, light
 draught, John B. Kendig, Willow Street.
 Best geraniums, Isaac K. Merig, Leacock.
 Best canteloupes, C. Miller & Son, Conestoga.
 Best parlor double heater, A. C. Kepler, city.
 Best steam and hot air heater, Flinn & Breuneman.

Best Home-Made Dress.

The premiums offered by Strawbridge & Clothier
 for the best home-made dress were awarded as
 follows:

- First premium, Mrs. Sue Wolfersberger, city.
 Second premium, Mrs. Jordan, city. Third pre-
 mium, Miss Pauline Hengler, city.

AGRICULTURE.

What Shall the Farmer Sell?

A man once told us that he never sold anything of
 material value off his farm. What could he sell
 then? We thought of only one product in all of the
 long list, and that was butter. After a little ques-
 tioning we found he meant that he fed all his hay
 and straw. This retaining of all fodder was doubt-
 less a wise action and he knew it.

Theory and practice are sometimes widely sepa-
 rated. In theory, milk should not be sold from the
 farm, as it contains much nitrogen, phosphoric acid
 and potash. Those three are elements usually lack-
 ing in a poor or wornout soil. If butter is made from
 the milk, and it only is sold, all of the three ferti-
 lizers are retained. Butter is a pure fat and is made

up of water and air elements. But, when we look
 at it, the folly of everyone refusing to sell milk be-
 comes evident. Here are the vast cities to be sup-
 plied with milk. The millions of people without
 cows must receive milk from the millions who have
 them. If everything is properly adjusted—and we
 do not say that it is—the farmer who sells milk
 should get enough for it to cover all expenses of re-
 covering the fertilizing elements sold and make a
 handsome profit besides. There ought to be a return
 current from all consumers of soil products back to
 the soil that has produced the good.

In the same manner there are millions of city horses
 to be fed with hay and grain, and this fodder
 must come from somewhere. The farmers who sell
 the hay, etc., should be well enough paid for it that
 they may afford to purchase the amount of phosphoric
 acid, potash and nitrogen, to make good the loss.
 There may be many localities where a farmer can
 feed all his own fodder to best advantage, but as
 surely there are or should be others where it is the
 wisest to sell the hay and grain and buy its equivalent
 back as manure in one of its many forms.

Farmers must sell something. They must sell a
 portion of the fertility of their lands every year.
 How to restore this over-wasting capital and get a
 living income besides is the problem not to be solved
 without study.—*Press.*

"A Little Farm Well Tilled."

It has often been remarked of the agriculturists of
 this country that they are land poor. The highest
 ambition of the average farmer appears to be to be-
 come the possessor of as much land as he can possi-
 bly obtain. Ordinarily, if not always, this idea is a
 very erroneous one—at least so it appears to us.
 A small farm, well tilled, will give as large, if not
 larger, returns than a farm twice the size poorly
 cultivated. The expenses on a large farm are far
 more, proportionately, than on a small farm. A
 small farm can be thoroughly tilled, and every inch
 of it made to reach its highest state of productiveness.
 If this principle were followed out, and our farms
 divided into smaller holdings, a far different state
 of cultivation would be seen in the valley than at
 present obtains. Many farmers mortgage their farms to
 purchase more land, when they already have more
 than they can properly attend to. The money would
 return them ten-fold more if invested in improved
 breeds of cattle, sheep and pigs, and in labor saving
 machinery, fertilizers, etc., to be used on the land
 they already own.—*Bridgetown (N.S.) Monitor.*

A New Requirement in Modern Farming.

A good farmer always needed skill, but in the
 changed conditions of modern farming a different
 kind of skill is needed from that required by our
 fathers and grandfathers. This is more largely the
 case West than East, but true in both. Formerly it
 was mostly manual skill in the use of simple imple-
 ments, such as the sickle, the scythe and the com-
 mon walking plow. Now the farmer needs to know
 how to adjust, run and care for machinery. Ma-
 chines properly handled call for little manual ex-
 pertsness to run them. But to manage the present
 implements requires a degree of mechanical skill
 that a large proportion of our farmers do not possess.
 To comprehend the full extent of this change, com-
 pare the modern threshing machine with the old-
 fashioned flail, or the self-binding harvester with the
 old sickle, or its successor, the grain cradle. Every
 careful observer must recognize the fact that the
 lack of skill in using and caring for his machinery
 is one of the most potent sources of loss to the far-
 mer. We have known one man to use a mower for ten
 years, without expending over thirty dollars in re-
 pairs—or three dollars annually—while his neighbor
 in cutting a smaller quantity of grass used up three
 equally good machines in the same time. Compare
 the expense of this one item: First farmer expen-
 ding one hundred and thirty dollars, plus, say seventy
 dollars for interest—or two hundred in all—for ten
 years. This is just twenty dollars per annum; quite

an item you will say, for mowing tools alone, but
 still much cheaper than mowing with the scythe.
 The other wore out three machines, three hundred
 dollars, to which add repairs, say same as the other
 —thirty dollars, and interest on one hundred dollars
 for ten years, seventy dollars; on one hundred dol-
 lars, (the second machine for six years) forty-two
 dollars; and on another one hundred dollars (the
 third machine for three years) twenty-one dollars,
 and you have a grand total of four hundred and six-
 ty-three dollars—or forty-six dollars and thirty cents
 per annum—an annual expense of more than twice
 as much as the other. The same calculations con-
 cerning the harvester, the sulky-plow, the hay-rake,
 and other farm implements, make an enormous dif-
 ference in the cost to a man who is unskillful in
 using and caring for them. An important inquiry is
 how the present difficulty can be remedied.—*American Agriculturist.*

Feeding Depleted Soil.

Professor J. W. Sanborn, of the Missouri College
 Farm, at Columbia, has been glancing at the agricul-
 tural statistics of that State, and finds that the
 wheat yield has gradually run down in twenty years
 from 14 to 11.7 bushels per acre, and the corn crop
 from 30.8 to 26.6. The significant figures emphasize
 the unmistakable necessity of refreshing the soil,
 whose fatness the pioneers have been extorting with-
 out compensation. This point—with suggestions for
 supplying the need—is illustrated by the following
 statement:

"Any one of the materials that constitute the four-
 teen found in plants is available to the plant, re-
 gardless of source (unless in poisonous compounds)
 if only in soluble condition. Of the fourteen ele-
 mentary materials that enter into the growth of a
 plant, three or four of them are of but very limited
 importance. If any one material of the other ten,
 several of which are familiar to all, like lime, potash,
 sulphur, iron, and phosphorus, are entirely want-
 ing in the soil, which fact never occurs except in arti-
 ficial soil, the plant cannot grow; if present in de-
 ficient available quantities the plant does not thrive,
 cannot grow. Most soils contain, of these ten, seven
 materials that are, according to the world's expe-
 rience, in sufficient quantities to grow crops for long
 periods, whose limit, if any, is unknown. The three
 which we need to furnish the soil are nitrogen, phos-
 phoric acid and potash, and sometimes lime and
 magnesia. But of those three sometimes only two
 are needed, and again often only one is needed. I
 have farmed two farms; the first required only phos-
 phoric acid, repoussing slightly to the use of
 potash and nitrogen; the second gave response in
 increased crops to only potash. So wanting in pot-
 ash was this soil that without any manure it soon
 gave but ten bushels of corn per acre; while by the
 use of 64 lbs. potash per acre the crop was nearly
 fourfold as large on sections side by side. This fer-
 tilizer cost but about \$2.50 for the locality in ques-
 tion. The deficient material of a soil is like a weak
 link in a chain."

Several million dollars are annually expended in
 each of several States for chemical manures, and
 their use is extending rapidly westward. Ohio had
 over 100 brands analyzed in 1883; much is bought in
 Illinois, and one firm alone sold eighty tons in Mis-
 souri last year. Professor Sanborn is carrying for-
 ward some tests to throw some light upon the con-
 ditions under which it may be practicable to use the
 chemicals in that State, and publishes the initial re-
 sults in his Bulletin No. 7.

HORTICULTURE.

Watering Newly Set Trees.

This is the rock on which most tree planters fall.
 "Well," once said a gentleman to me, "those trees I
 set out with the greatest care, watered them every day,
 but could save only a part of them." No wonder.
 Another gentleman wrote me that half a dozen
 plum trees he had purchased and planted "were

looking very poorly, and he was afraid they would not live. The trees appeared to be fine ones, and he stated he should give them the best attention, water them himself every day, in the hope that they would do well." [Immediately wrote him that if the trees were well set out and he would let them alone, I would give him two for every one that died. He never made any claim for the trees.

That newly planted trees in certain unfavorable seasons and certain conditions of soil, do occasionally require watering will not be denied. But the cases are so rare that they are scarcely to be taken into account. A tree properly planted, with the soil in the right conditions immediately goes to work to replace roots which had been severed in removal. The earth grows warmer every day, and the young rootlets feel the influence of this heat, and new fibres immediately break from them, as may be seen by examination twenty-four hours after planting. The soil has probably a temperature of 60° to 65°, and perhaps more; but just as all is going on well enough along comes the planter with a pot of cold water, which he dashes around the tree, chilling the earth and, indeed, often killing the young fibres. Trees can stand a great deal, or twice as many would never survive. The tree leaves out with the great heat of the sun upon the soil, and again the fresh fibres begin to put out; once more comes the shower bath, often a third time, and if the tree does not die, it is in spite of the planter.

It is rarely that a free planted very early needs any water; certainly, only in a very dry soil, and it should then be given at the time of planting. But later in the season, when the sun's rays are more powerful and evaporation rapid, possibly one, or at most two waterings are all any tree needs. If the planter has nothing to do, and wishes to show his affection for his trees, he can safely take the syringe or even a fine rose water pot and moisten the whole top of the trees, which will do far more good than to drown the roots.—*C. M. Hovey in Massachusetts Ploughman.*

Setting Strawberry Plants.

The best time for this work, as every one is aware, is in spring just as the young plants are beginning their growth. Next to this in the season is immediately after fruiting, while the plants are in a partly dormant state, and before they fully recover from the exhaustion of bearing, but more care is then required. Most of the old leaves should be removed, the fine mellow earth pressed on the spread roots, and if the soil is dry they should be well watered, and a mulching of manure given an inch or two in thickness. This mulching will prevent the ground from crusty or baking if a second watering be comes necessary. Setting potted plants late in summer succeeds well, but the operation, first and last, is attended with considerable labor, and it is only adapted to limited garden beds. An easier, and quite as successful mode, where the plants to be set are near at hand or in the same garden, is to take up blocks of earth with the plants by using a spade, and to set them with their mass of earth, into openings previously cut with the spade, where they are to remain. We have no (June 20th) a long bed of the Cumberland, and another of the James Vick, both in full and abundant bearing, set in this way during the latter part of last August. The plants were scarcely checked in growth by removal. With dry, light soil, the work would be difficult, as it would readily crumble from the roots, unless the plants were carried one at a time on the spade; but with a strong loam sufficiently moist, two or three dozen may be taken up in compact blocks and carried on a wheelbarrow to the place for planting. It is hardly necessary to remark that last autumn rooted runners should be selected if the work is done now, but later in the season the new plants of the present year's growth may be chosen.—*Country Gentleman.*

Grape Vines Growing on Trees.

These would save a considerable expense in staking and wiring if they could be planted between

rows of trees and the vines trained to run up and over the branches. The Italians use elm and other forest trees for this purpose, but, except on the Western plains, we do not require to grow these for wood and timber, as is the case in many parts of Italy; we can plant our grapes in orchards and thus get a double crop of fruit. Some have been quite successful by this method, others not at all so. The reason of this difference is owing probably to the difference of soils and cultivation.

Apple trees are said to be the best of the fruit sorts for grape climbing, but we have raised fair crops from such an overrun the cherry and peach. We thought such grapes as grow here rather sweeter than those produced on stakes in the same soil at a short distance from the trees. The only objection we have heard to training grape vines upon trees is that their height makes them difficult to gather. But trees could be grown for the special purpose by cutting off the top when young and letting the side branches shoot one close to the ground. When thus grown the soil would not need to be plowed beneath, as the shade would keep it loose and prevent the growth of weeds. Moreover, picking fruit from such trees would not be unhandy, nor would the clusters be liable to be blown off by hard winds.

Best Method with Celery.

Dr. Sturtevant, at the Experiment Station, found that averaging the results obtained in seventeen samples, in which the varieties from the two rows are separately noted, omitting fractions, plants grown under level culture averaged 177 pounds per hundred plants, while those under trench culture averaged 178 pounds per hundred plants. The length of the bleached stems was rather greater, and the suckers were rather more numerous upon the plants grown in the trenches; but on the other hand, the bases of the stems were more often split and deformed than occurred in the plants grown upon the level. It appears, therefore, from this trial, that the trench culture yielded no advantage for the increased labor involved.

Shorten the Canes.

Now is the time to pinch off the ends of the present year's growth of blackberry canes. If left to themselves, the canes grow long and slender, and may require tying to stakes or trellises next season to keep the fruit out of the dirt; but if pinched back now, the side buds will throw out bearing shoots which will increase the productive capacity of the plants, and at the same time cause them to grow strong and stocky enough to stand without tying. At least this will be the case with strong-growing varieties, like the Snyder blackberry and Hornet raspberry. The pinching can be done very rapidly with the thumb and finger. Blackberries should not be allowed to grow over four or five feet high, and raspberries not over three feet. Keep all suckers and sprouts that are not wanted to grow, hoed out. They are no better than any other weeds.

HOUSEHOLD RECIPES.

CREAM CAKE, so dear to the heart of the children, can be made by slitting patty-pan cakes, by taking out a portion of the centre and filling the space with thick custard. There need be no waste, as the pieces cut out may be used in the foundation for a nice pudding.

RICE CAKE, VERY DELICATE.—An angel cake that does not get dry so soon as the original variety and has more richness, is made of rice flour $\frac{1}{2}$ pound, $\frac{1}{2}$ pound of sugar, $\frac{1}{4}$ pound of butter, four eggs, salt and flavoring to suit the taste. Beat the eggs, rub the butter and sugar together till like cream, then add the eggs, and last of all stir the rice flour in a little at a time. Bake in sponge-cake tins or shallow pans. Double this quantity makes a large cake.

DELICIOUS cookies are made after this recipe: One cup of butter—a small cup—two cups of sugar, three cups of flour, two eggs, leaving out the white

of one; roll out quite thin, cut in any shape you chose—square ones are generally preferred; beat the white of the egg which you reserved and spread over the tops of the cookies; sprinkle cinnamon and sugar over them and bake them.

LEMON MARMALADE.—Slice the lemons very thin, only taking out the seeds; add three pints of cold water to each pound of fruit after being cut into pieces; let it stand twenty-four hours; boil it until tender, pour into an earthen bowl until the following day, weigh it, and to every pound of boiled fruit add $\frac{1}{2}$ pounds of lump sugar, boil the whole together till the syrup jellies and the chloes are rather transparent.

TO PRESERVE PLUMS.—Make a syrup of clean, brown sugar; clarify it; when perfectly clear and boiling hot pour it over the plums, having picked out all the unsound ones and stems; let them remain in the syrup two days, then drain it off; make it boiling hot, skim it, and pour it over again; let them remain another day or two, then put them in a preserving kettle over the fire, and simmer gently until the syrup is reduced, and thick or rich. One pound of sugar to each pound of plums. Small damsons are very fine, preserved as cherries, or any other ripe fruit. Clarify the syrup, and when boiling hot put in the plums; let them boil very gently until they are cooked and the syrup rich. Put them in pots and jars; the next day secure as directed.

PICKLED PEACHES.—To one gallon of best vinegar two pounds of sugar; boil together; rub the down off the peaches, stick them full of cloves, pour the hot vinegar over them, cover tight, and keep some time before using.

PICKED CURRANTS.—Five pounds currants, four pounds brown sugar, two table-spoons ground cloves, two table-spoons cinnamon, one pint vinegar. Boil two hours, or more, till quite thick. To be eaten with meat.

PICKLED CRAB-APPLES.—To one quart of fruit add one cup of sugar, and vinegar enough just to cover. Spice with ground cloves to your taste. Put your fruit into the vinegar, and stir them till they are soft; or, better, steam them first, and pour the vinegar and sugar on them when hot.

GOVERNOR'S MIXTURE, OR SWEET TOMATO SAUCE.—Slice a peck of green tomatoes, six green peppers, four onions; stew a cup of salt over them; let them remain over night. In the morning, pour off the liquid, and put them in a kettle, with vinegar enough to cover them; add a cup of sugar, one cup horseradish, one table-spoon cloves, one of allspice, one of cinnamon. Simmer it till soft. Put in the sliced onions and peppers in the morning, just before simmering.

"AUNT MARIA'S" TOMATO PRESERVES.—Take green tomatoes, of the acre size, and prick them; add a little water, and bake them gently and lightly; make a syrup (clarified) of white crushed sugar; then add the syrup to the tomatoes, and stew together moderately, and seal up for use; though a better way, with all preserves, is to put the jar containing the fruit into a kettle of cold water, and heat to boiling, as above. The preserves will be white and beautifully transparent, and retain their form.

FRUIT FRITTERS.—Make a batter of flour, milk and eggs, of whatever richness you desire; stir into it either raspberries, currants or any other fruit. Fry in hot lard the same as pancakes.

MRS. ROBERTS' BOSTON BROWN BREAD.—One heaping quart of rye flour, scanty quart of milk, same quantity of warm water, coffee cup of molasses, one penny's worth of baker's yeast, or one coffee cup of homemade yeast, teaspoonful of salaratus, dessert-spoon of salt. Grease an iron kettle, put in the mixture and place immediately in a slow oven. Bake six or seven hours.

PANCAKES.—Beat up three eggs and a quart of milk; make it up into a batter with flour, a little salt, a spoonful of ground ginger, and a little grated lemon peel; let it be of a fine thickness and perfectly smooth. Clean your frying pan thoroughly, and

put into a good lump of dripping or butter. When it is hot, pour in a cupful of batter, and let it run all over an equal thickness. Shake the pan frequently, that the batter may not stick, and when you think it is done on one side, toss it over; if you cannot, turn it with a slice; and when both are of a nice light brown, lay it on a dish before the fire; strew sugar over it, and so do the rest. They should be eaten directly, or they will become heavy.

RICE GRIDDLE CAKES.—Put a teacupful of rice into two teacupfuls of water, and boil it till the water is nearly absorbed, and then add a pint and a half of milk. Boil it slowly until the rice is very soft.

MUFFINS.—Melt half a teacup of butter in pint and a half of milk; add a little salt, a gill of yeast, and four eggs; stir in flour enough to make a batter rather stiffer than for griddle cakes. If kept in a moderately warm place it will rise sufficiently in eight or nine hours.

RYE CAKES.—Four and a half cups rye meal, three eggs, one and a half teaspoons cream tartar, one teaspoon soda. Mix with milk till about as thick as fritters; little salt. To be eaten hot.

APPLE FRITTERS.—Make a batter as above, only thicker; pare apples; cut them in quarters and core them; then take up a quarter of an apple, with some batter, and fry them on both sides in hot fat, the same as pancakes.

ASTOR HOUSE CORN BREAD.—One quart of buttermilk, two eggs, one-fourth ounce of saleratus, two ounces of butter; stir in meal until the mixture is about as thick as buckwheat batter. Bake in square tin pans, about an inch thick, half an hour, in a hot oven.

PAN DODDINGS.—Three teacups of fine rye meal, three teacups of Indian meal, one egg, three table-spoonfuls of molasses; add a little salt and allspice; sufficient sweet milk to form a batter stiff enough to drop from a spoon. Fry them in hot lard until a nice brown.

SALLY LUNN.—One quart flour, one teacup butter, one teacup yeast, one pint milk, three eggs. Beat the yolks of the eggs light, stir in yeast, flour, butter and milk; add the well-beaten whites, and salt to taste. Let it rise; put it in the pans, and let it rise again; when risen a second time, bake. To be eaten hot.

MRS. H.'S FLAP JACKS.—Half coffee cup scalded Indian meal, one pint sour milk, teaspoon soda, flour to thicken.

MRS. H.'S MUFFINS.—One pint sour milk, teacupful soda, one egg, flour to make a thick batter.

MRS. BARNES' FRENCH ROLLS.—One quart milk, one cup butter, two eggs. Let the dough rise twice in the dish, that is, after it rises once, take it out, knead it over and let it rise again; after this roll it out, cut it out with a tumbler, double together, roll, fashion, and let it rise in the pan half an hour before baking.

BARKINGTON RUSK.—One cup sugar, one cup milk, one cup yeast, one cup flour; mix over night; in the morning add half cup sugar, and half cup butter, rubbed together, two eggs, reserving the white of one, beaten to a stiff froth with a little sugar, to spread over the tops of the rusks.

INDIAN MEAL PUFFS.—Into one quart boiling milk stir eight spoonfuls of Indian meal, and four spoonfuls of sugar. Boil five minutes, stirring constantly; when cool add six well beaten eggs. Bake in buttered cups half an hour.

FRENCH TEA BISCUITS.—Two pounds flour, two ounces butter, half pint milk, one egg, half cup sugar, one cup yeast.

MRS. GAUBERT'S COFFEE CAKE.—One cup coffee, one cup molasses, one cup sugar, one half cup butter, one teaspoon saleratus, one egg; spice and raisins to suit the taste.

MOUNTAIN CAKE.—One cup of sugar, two eggs, half cup butter, half cup of milk or water, two of flour, teacupful cream tartar, half teacupful soda, nutmeg.

JUMBLES.—One pound of butter, one of sugar, two of flour, three eggs, half cup of sour milk, one teacupful of soda; roll in white coffee sugar. This will make a large batch—if a small quantity be wanted take proportionately less of material.

GINGER SNAPS.—One cup of butter, one of sugar, one of molasses, half cup of ginger, teacupful soda; mix stiff.

A SMALL SPONGE CAKE.—One cup of sugar, half cup of milk, one egg, two teacupfuls of cream tartar, one of soda, butter size of an egg.

POOR MAN'S CAKE.—One cup sugar, half cup butter, one cup sour cream, one egg, flour enough to make a good batter, half teacupful saleratus.

FRUIT CAKE.—One and a half pounds of sugar, one and a quarter pounds of flour, three quarters of a pound of butter, six eggs, a pint of sweet milk, one teacupful of saleratus, one glass of wine, one of brandy, and as much fruit and spice as you can afford, and no more.

CUP CAKE.—Five cups of flour, three cups of nice sugar, one cup of butter, four eggs, one of good buttermilk, with saleratus enough to sweeten it; one nutmeg.

DELICATE CAKE.—Nearly three cups of flour, two cups of sugar, three fourths cup of sweet milk, whites of six eggs, one teacupful of cream tartar, half teacupful of soda, half a cup of butter, lemon for flavoring.

SUGAR GINGERBREAD.—One pound of flour, three quarters of a pound of sugar, half a pound of butter, five eggs; roll very thin on flat tins; do not grease tins, but slip off the cake, when baked, with a knife.

OLD COLONY CAKE.—Three eggs, one scant cup of butter, two and a half cups of sugar, one cup of sour milk, three and two-thirds cups of flour, even teacupful of soda, spice to taste; sift a little powdered sugar over the top.

REMOVING SPOTS.—For scouring drops for removing spots, grease, &c., from linen or any other substance, take of spirits of turpentine and essence of lemon, of each one ounce. The essence must be newly made, and it will leave a circle round the spot.

CHICKEN CORN PIE.—A lady contributor sends us the following: First, prepare two chickens as for frying; then put them down, and let them stew in a great deal of good, rich, highly-seasoned gravy, until they are just done. They have rarely picked two dozen ears of corn; take a very sharp knife and shave them down once or twice, and then scrape the heart out, with the rest already shaved down; then get a baking-pan (a deep one), place a layer of the corn on the bottom of the pan or dish, and then a layer of the chicken, with some of the gravy, and then a layer of the corn, and so on, until you get all the chicken in. Then cover with the corn, and pour in all the gravy, and put a small lump of butter on the top, and set it to baking, in not a very hot oven. It does not take long to cook. As soon as the corn is cooked it will be ready to send to the table. It can either be sent in the pan it is baked in, or turned out into another dish. There must be a great deal of gravy, or it will cook too dry.

TO PREVENT A FELON.—When a soreness is felt immerse the finger in a basin of ashes and cold water, set it in the stove while cool, and stir it continually, without taking it out, till the lye is so hot it cannot be borne any longer. If the soreness is not gone in half an hour, repeat it.

TO REMOVE MILDEW FROM LINEN.—Wet the linen which contains the mildew with water; rub it well with white soap; then scrape some fine chalk to powder, and rub it well into the linen; lay it out on the grass, in the sunshine, watching it to keep it damp with soft water. Repeat the process the next day, and in a few hours the mildew will entirely disappear.

PURGATIVE BALL FOR HORSES.—Aloes, one ounce cream tartar and castile soap one-quarter ounce. Mix with molasses thick enough to make into a ball.

LITERARY AND PERSONAL.

THE DORCAS MAGAZINE OF KNITTING AND CROQUET. Edited by Laura B. Starr, New York. 32 pp. octavo, in tinted embellished covers, at \$1 a year. An able, useful and interesting magazine in its specialties, and of most excellent typographic execution. Those doing with a might whatsoever their hands find for them to do, will be much facilitated in their labors by the aid of this little publication.

RANDOM NOTES ON NATURAL HISTORY.—A monthly at 50 cents per annum, published by Southwick & Jencks, Providence, R. I. 12 pp. demi-quarto, containing a rare fund of interesting local knowledge on subjects relating to its specialty.

TWENTY-THIRD QUARTERLY REPORT OF THE PENNSYLVANIA BOARD OF AGRICULTURE for April, May and June, 1884; 48 pp. octavo, containing list of members, official list, standing committees, act of establishment, correspondent's notes, condition of live stock, acreage of crops, condition of crops, farm wages, prices of farm products to May and June, 1884; minutes of annual meeting, minutes of spring meeting, list of official reporters and correspondents for 1884; list of County and State Agricultural Societies, and a tabulated analysis of fertilizers, by the Board, to May 1st, 1884. From these tables we gather that 45 county societies will hold fairs, at different dates, during the months of September and November; that 30 have decided to hold no fairs, and that 31 made no report. Some of the counties have from two to four societies, and all or nearly all have one.

REPORT OF THE KANSAS STATE BOARD OF AGRICULTURE for the month ending July 31, 1884—19 p. octavo containing acreage and yield of winter and spring wheat, oats, rye and barley; acreage and condition of corn, sorghum, broom corn, potatoes, millet, Hungarian grass, castor bean and fax; condition of fruit, and the enumeration of inhabitants of counties and cities, for 1884, together with a report of the State Veterinary Surgeon on glanders, foul in the foot, and Spanish or Texas fever and the meteorological record for the month.

THE RAMBLER.—A journal of news, manners and things. "Society, art, music, drama and literature" being the leading topics of its discussion. Published every Saturday at 115 Monroe street, Chicago, Ill., at \$3.00 a year. 16 pp. demi-folio in stout tinted paper covers. Full of interesting paragraphic variety, relating to live social matters and current literary gossip; exceedingly racy and readable. Amply able to "toot" abroad its own well-deserved fame.

WARD'S NATURAL SCIENCE BULLETIN.—12 pp. quarto; Rochester, N. Y. Price 50 cents a year. Mainly an advertising medium, exemplifying Ward's Mercantile Natural History establishment, nevertheless a journal of special interest to all who collect and deal in objects connected with the natural sciences, in both buying and selling. Mr. Ward, in his relation to natural science is pretty much as that of Barnum to the show business. In addition to the scientific view, he takes a practical mercantile, or commercial view of the subject, and can supply museums or private collections with almost anything belonging to the animal, vegetable and mineral kingdoms, from a *polypt* to an elephant.

REPORT ON THE GROWING CROPS—their condition, etc.—and on the rates of transportation, to August, 1884. 36 pp. octavo. Division of statistics, new series, No. 10, Department of Agriculture. Spring wheat, which has been threshed, averaged 99; oats 94, other grains 97; cotton from 79 to 97; tobacco promises a large crop averaging from 74 in Ohio to 103 in Tennessee; Pennsylvania estimated at 82; potatoes about 10 per cent. below 1883; most of the States have harvested heavy crops of hay; peach crop large in many places and pasture lands yielding an abundance of good hay.

PENNSYLVANIA STATE COLLEGE AGRICULTURAL BULLETINS.—The results of experiments showing the effects of various fertilizers on the growth of corn, oats, wheat and grass; 8 pp. octavo.

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JOHN A. HEDSTAND, Publisher

Entered in the Post office at Lancaster as second class matter.

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WE TWARD.	Leave	Arrive
Pacific Express	1:55 a. m.	2:55 a. m.
News Express	6:25 a. m.	7:30 a. m.
Way Passenger	6:30 a. m.	8:50 a. m.
Mail Train via Mt. Joy	9:30 a. m.	10:50 a. m.
Mail No. 2 via Columbia	9:35 a. m.	11:05 a. m.
Niagara Express	9:45 a. m.	10:55 a. m.
Hanover Accommodation	9:50 a. m.	Col. 10:20 a. m.
East Line	1:35 p. m.	2:55 p. m.
Frederick Accommodation	1:45 p. m.	Col. 2:15 p. m.
Lancaster Accommodat.	2:30 p. m.	4:00 p. m.
Harrisburg Accom.	5:20 p. m.	7:20 p. m.
Columbia Accommodation	7:30 p. m.	Col. 8:15 p. m.
Harrisburg Express	7:40 p. m.	8:50 p. m.
Western Express	11:10 p. m.	12:25 a. m.

EASTWARD.	Leave	Arrive
Mail Express	12:42 a. m.	2:55 a. m.
Philadelphia Express	2:27 a. m.	4:25 a. m.
East Line	5:55 a. m.	7:50 a. m.
Harrisburg Express	8:10 a. m.	10:20 a. m.
Columbia Accommodation	9:00 a. m.	11:45 a. m.
Seashore Express	12:58 p. m.	3:15 p. m.
Johnstown Express	2:20 p. m.	5:05 p. m.
Day Express	5:25 p. m.	7:25 p. m.
Harrisburg Accom.	6:45 p. m.	9:45 p. m.

The Frederick Accommodation, west, connects at Lancaster with East Line, west, at 1:35 p. m., and runs to Frederick. Hanover Accommodation, west, connecting at Lancaster with Niagara Express at 9:45 a. m. will run through to Hanover daily except Sunday. Harrisburg Express, west, at 7:40 p. m. has direct connection to Columbia and York. The East Line, west, on Sunday, when through, will stop at Downingtown, Coatesville, Parkersburg, Mount Joy, Elizabethtown and Millietown. The Johnstown Express from the west, will connect at Harrisburg on Sundays with Sunday Mail east, for Philadelphia, via Marietta and Columbia.

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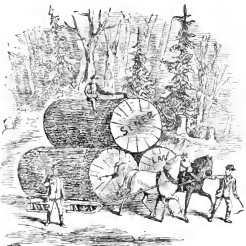
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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., OCTOBER, 1884

Vol. XVI. No. 10.

EDITORIAL.

OCTOBER.

Through mingled viscus ill defined
Aren muds ere displayed,
And as they mortal forms assume
A *Bray* is portrayed.
Upon a rampant goat he sat,
And dangling from his side,
An empty flagon carless hung
That erst the wine supplied.
Upon his head a crown he wore,
Of crimson Autumn leaves;
The jocund laughter and the jist
His stalwart bosom heaves;
Anon he scattered golden grain,
Anon looked grave and sober;
Then drew his Russet mantle 'round,
The form of "Old October."

This is the tenth month of the Julian year, and contains *thirty-one* days. The name is, however, derived from *Octo*, eight; because it was the eighth month of the Old Roman year, which began in March. The French and Prussian is *Octobre*; the Spanish *Octubre*; the Portuguese *Outubro*; the Italian *Ottobre*.

The old Dutch name was *Wyn-maand*: the old Saxon, *Wyn-monath*; (that is, wine-month, or the time of vintage); it was also called *Winter-fylleth*, which means winter-summer; in the French Republican Calendar, it was called *Vendémiaire*, the time of vintage; (from September 22d, to October 21st).

In this month begins the busy husking season, but, perhaps, in no other species of labor, has there been a greater change, since sixty years ago, than there has been in the mode of corn-gathering. So far as it relates to the husking itself, except an improvement in husking implements, the operation is pretty much the same as it has always been since Indian corn has been cultivated. The corn stalk is now usually cut off at the base, and shocked, or hauled to one side of the field, and the husking is either done there, or it is "hauled in". In the olden times, in the Eastern States, the ears were pulled off and hauled to the barn, and the "corn-shucking" or "Husking Bees" became gala occasions among the young folks, at which the foundations of many love-affairs were laid.

But, sixty and seventy years ago, the corn was almost universally husked from the stalk as it stood in the field, in Lancaster county. About as much as the farmer needed for the consumption of his own cattle and sheep, was topped and bladed; but, two-thirds or three-fourths of it was untouched, and stood tall and gaunt, like a small pine forest, and the huskers each took a row, and sometimes amidst colds, and frosts, and winds, with the edges of the blades sawing across the wrists and hands, or across the foreheads and the noses of the huskers, made the operation anything but a romantic one. And then too the rivalry between the experts to excel each other, often made it hard labor for the non-experts to keep up with them. We have seen the corn in this condition standing in the

fields in Indiana and Kentucky, as late as the month of February, whatever the practice may be now.

The principal garden labors in this month are the protection and preservation of crops already matured, transplanting others, and setting out trees and shrubbery. Asparagus beds may be put in order, and towards the end of the month beets and carrots may be carefully stored away for winter use. Lettuce may be planted in cold frames for next spring, and also cabbage for early use next season.

Potatoes should be all gathered within the month, and spinach may yet be sown. Nuts of various kinds may be gathered—walnuts, chestnuts, butternuts, hickory nuts, etc., etc. Nuts of all kinds largely entering into the manufacture of confections are now in greater demand than at any former period in the history of the country, and bring remunerating prices. Of course the manning, plowing and sowing that was not done in September, will be finished up in the forepart of the month. The provident farmer will always find enough to do, as long as the weather continues favorable, and when it is otherwise, he will have plenty of indoor work to do. The farmer occupies the most enviable position in the world's economy, he stands upon the very centre of the arch on which the social fabric of our country with all its varied interests rests, and he feels more than others the independence of an American citizen.

JUGLANDACEÆ.

(Walnut Family.)

This is a small order of trees that stands between the PLANTANACEÆ—Button-wood family—and the CUPULIFERÆ—Oak family. Only two genera belong to this family, both of which are represented largely in the county of Lancaster.

Of the typical genus there are but two species; namely, *Juglans nigra*, or "Black Walnut"; and *Juglans cinerea*, or "Butternut," sometimes also called "White Walnut." The nuts of these—especially the first named—are growing greatly in demand, entering largely into the manufacture of comfits and confections, and on the whole, perhaps no nuts are more popular among all classes who are able to digest them. Both are natives of Lancaster county, and are about the first nuts the rural population become acquainted with; and they now have a commercial value, altogether unknown to the early memories of those who have passed their "three score years and ten."

The "hulls" of both the black walnut and the butternut were extensively used, in the long ago, as coloring matter for home-made cloth, and in some parts of the country are still so used, especially in the Southern States, where the Butternut-brown became famous. In our boyhood the walnut-brown was a more common color among farmers than it is at the present day: still it is not an uncommon thing, even now, to see whole families clad

in home-pun cloth of this color, especially among the Omish sect. The very young, immature, fruit of the Butternut was, at one time, much used as a condiment, in the form of a pickle; and also in the form of a sauce—"walnut catsup" and it is still so used. The object is to promote digestion, but perhaps the real intent is to enable people to eat more and oftener than they possibly could without such a gastronomical stimulant.

The walnut trees are sometimes subject to defoliations by insects. The "Regal Walnut Moth" (*Catabauxpa repalis*) and the "Hand-Maid Moth," (*Dobsonia niandata*). The former, however, is a solitary species, but large enough to do great damage if it became numerous. The latter is much inferior in size, but being gregarious, they often are numerous enough to defoliate many entire trees, and very large ones too.

But, more important still, is the commercial value of the wood of the black walnut—practically and economically, the mahogany of North America; hence the destruction of this tree, in the States where it abounds, is becoming fearful, perhaps reckless. Yielding to the dictates of fashion, it transcends the use of mahogany itself in the manufacture of all kinds of furniture, organs, melodians, railings, pulpits, and for other purposes. Agents for foreign manufactures and lumber dealers, travel through the American States and enter into large contracts for the delivery of walnut lumber and timber, and export it beyond the seas. Unless the States enter into the protection, preservation and cultivation of black walnut, the generations now rising, may be made sensible of its entire extinction in our country. It is time now to "call a halt," or to enter vigorously into its cultivation and preservation. Our people are imbued too deeply with that restless, progressive spirit which kills the goose to secure the golden egg in the present, to embark in any enterprise, the fruits of which can only be realized in a remote and dubious future. If no species of self-denial can out-grow this profligate tendency, the walnut must ultimately "go," as many other things have gone.

The other genus belonging to the restricted family JUGLANDACEÆ is that of *Carya*, embracing the various species of hickory; which includes eight reputed species, most of which are native to Lancaster county. As a nut, perhaps the most popularly known—on account of its commercial value—is the "shell-bark hickory," (*Carya alba*) also known as "slag-lark." Although this species occurs sparsely in our county, it is most abundant along bottom lands of the southern tiers of the counties of Pennsylvania, westward; nevertheless, as a general product it is known from Maine to Wisconsin. The wood is straight grained, heavy, and elastic, and excellent as a timber or a fuel. The bark is rough and shaggy, consisting of long, loosely adhering plates; but, what boy does no

know and relish the fruit? It is, however, somewhat displaced as a popular edible, by the "Everlasting Peanut," but is unrivaled as an ingredient in modern fine confectioneries.

Perhaps of more commercial importance is the "Peanut," (usually pronounced in the localities where they grow, "Pe-cawn,") but it is not a native of Lancaster county. This is the *Carya oliviformis*, of Nuttall, so-called because the fruit is in the form of an olive. It is abundant in some of the Western States, especially in Indian and Illinois, and it is on record, that at Terre Haute, Ind., trees occur from 80 to 90 high. The fruit has a thinner shell than the "shag-bark," and the kernel is not divided by bony partitions.

The "Thick-shelled Hickory Nut," or "Shellbark" (*Carya sulcata*) is also found in Lancaster county, but it is more common west of the Alleghenies. The fruit is very large—about twice the size of the common Shellbark—and although the shell is very thick, the kernel is quite as delicious as that of the *alba*. The tree grows very high—from 40 to 60 feet high, in some cases 80 feet. The bark is also somewhat shaggy, in semi loose narrow strips. It has however become rare in this county, if it ever had been common—indeed, we have not noticed one since the days of our boyhood.

The "Mockernut" (*Carya tomentosa*) was more frequently found in this county, but this also is more abundant in the West and the South. The fruit varies very much in size, even on the same tree, being from one to two inches in diameter, and the husk or hull is very thick. The shell is also pretty thick, and the kernel comparatively small, difficult to extract, but the taste in some well developed nuts, is not much inferior to the Shellbark. The bark is thick and rugged, but not scaly. The wood is excellent fuel, and also valuable for manufacturing purposes. The labor of gathering these nuts in our boyhood, but poorly compensated us for our trouble. There was too much lumber and too little meat, after drying.

The "Pignut" hickory (*Carya glabra*) is associated with our earliest recollections of nuts. The nuts of this species of hickory vary somewhat in quality and shape, but one notable tree of our boyhood bore nuts that were not only very bitter to the taste, but as astringent as a green persimmon. This is the *C. porcinia* of Nuttall, but TORREY's name has priority. The tree grows very tall. Some known to attain 100 feet in height. The bark is moderately even, and the wood is very tough and hard, but it makes good fuel. Both the shell of the nut, and the husk are moderately thin. One tree on the Dully (Evans) farm, half a mile from the bank of the Susquehanna, north of Marietta, was very prolific—yielding abundantly every year, but always disappointing "us boys," for they looked so fair that it was hard to realize that they were totally worthless as an edible.

There is, however, one nut that is bitter than the "Pignut," called by way of distinction the "Bitternut," (*Carya amara*) having a very thin shell, a white nut, and so very bitter that pigs would not have anything to do with it, whereas they *scout* sometimes eat pignuts, without any special hankering after

them. This species of hickory has been confounded with the pignut, but we are not sure that it occurs in this county, but is found in abundance in Pennsylvania, along the valley of the Ohio, and elsewhere in this State.

In the Southern States, among the swamps and rice ditches there grows a species of hickory called the "Water Bitternut," (*Carya aquatica*) that bears a small, angular, compressed nut, with a very tender, reddish shell. Neither the fruit nor the timber are of any special value. The tree attains to 30 or 40 feet in height, and the leaves, which are a shining rich green on both sides, strongly resemble peach leaves. "Thin-shelled hickory nut" (*Carya microcarpa*), or "spurious shellbark." A large tree, 60 to 80 feet high; bark even and the trunk from 18 inches to two feet in diameter; grows in moist woodlands from Pennsylvania to Tennessee. Grows in Lancaster county. The nut is very edible, and in our boyhood, when the trees were occasionally few, we thought the nuts were veritable shellbarks. These nuts all occur in varieties, owing probably to varieties of soil, or whether on bottoms or uplands.

The hickories are nearly all infested by various insects. The nuts are preyed upon by species of "Snout-beetles" (CURCULIONIDE). The long horned Capricorn beetle (*Clytus pinus*) is very destructive to hickory timber and has been known to destroy whole forests. The hickory trees on the Wheatland farm—the former residence of ex-President Buchanan, and now owned by Mr. Geo. B. Wilson—are now slowly passing away through the depredations of this and other insects. Nothing will now save the sound trees that still remain, but cutting down the infested ones. Some of the trunks may yet make tolerable timber, and the branches good fuel, but the branchlets and twigs are badly infested by small "Typographer-beetles" (*Scolytidae*), and should be burned.

On a late visit to the little wheatland grove, we found many of the hickory trees in a sad condition. An ax struck into the trunks almost anywhere, and a chip taken off, would reveal dozens of the larvae of the "Painted clytus," as well as other wood-boring insects. We also noticed the work of the "Hickory tree Girdler" (*Onciderus singularis*), and of a "Pruner" doubtless a species of *Elaaphidion* (*E. putator*, or acogener).

We found the "Pigeon Tremex," (*Tremex cotinabae*) with its ovipositor entered into the trunk of a hickory tree, in the act of depositing her eggs on the 27th of September, the first knowledge we had of its attacking hickory, although we were aware that it deposited its eggs in the trunks of the elms, the buttonwood, and also the pine. This insect belongs to the Order HYMENOPTERA, which includes the sawflies, bees, wasps, hornets, etc., whilst those above alluded to, belong to the Order COLEOPTERA, which includes the "beetles" of various families.

We also found a flat, black, shiny "mimic beetle" (*Holobata inopulans*) and an allied species of *Saprinus*, under the bark of one of the trees. We have often found these insects in decayed vegetable matter, under loose bark, and in rotten wood. We do not think they attack live timber, but when trees become enervated through the attacks of other depre-

daters, many other species find them proper places in which to propagate their species. Some wood-boring insects prefer living timber, others only that which is dead. For instance the "Hickory tree girdler," makes a deep groove around the entire branch, and deposits its eggs above the groove. The branch so girdled dies, and the larvae feed on the dead branches, which are subsequently broken off by the winds. This is also the case with the "Oak tree pruner" (*Elaaphidion putator*), but the latter cuts off the branch from the *inside* instead of the outside. We have collected and taken home scores of branchlets found on the ground containing larvae, from which the beetles were subsequently evolved. This pruning is sometimes beneficial to the trees; but if it is deemed injurious, the remedy is to gather the branches and make a bonfire of them.

THE CIGARETTE "WEEVIL."

On the 3d inst., Mr. Wm. Welchans submitted to our examination a package containing twenty cigarettes, and at the same time called our attention to an article in the Philadelphia *Times*, on the insects infesting manufactured tobacco, and especially the cigarette and the fine chewing tobacco. Out of the twenty cigarettes, fourteen were infested by a small light-brown coleopterous insect, five *m m* in length, including the head, thorax and abdomen, and about one *m* in diameter. Including the mature insects, the larvae and the pupae, the average number of insects in each cigarette was six; although, judging from the number of perforations in paper wrappers, from three to five beetles must have escaped from each of them before they came into our possession. We may therefore conclude that each cigarette contained ten of these destructive little pests, which would amount to 140 in each package. The larvae vary in size, the largest being six *m m* in length, and two in diameter. The pupa is a little larger than the beetle; in which the rudimental head, thorax, wing-covers, feet, and two conspicuous black eyes are distinctly visible. The larvae is always bent crescent shaped; has six pectoral feet, and the hind end of the abdomen somewhat enlarged, resembling a melonelon larva (grub worm) in miniature. Both the larva and the pupa are of a yellowish butter color, and the former moves very slowly and indifferently on a plain surface. The case, no doubt, is 'bad enough; but we opine that the articles on the subject which appear in the *Times* are strongly sensational. To begin with: "Half the size of a fly" conveys no idea of its size. We know of flies that are two inches in length. Nor has it a "sharp pointed head," but on the contrary a blunt, retractile head, which, when not extended while running, is drawn well under the thorax. Perhaps the above character was given it to approximate it to a "weevil," which it is not. Weevils are snout-beetles, and belong to the family *Curculionidae*, but this insect is evidently a *Ptilidae*, and is allied to the "death-watch beetles"—very probably belongs to the genus *Ambium*—or near to it. (Perhaps it may be allowable to call this insect a weevil, in the convenient sense in which the term is usually applied to all destructive small insects, of which we do not know the specific names.)

They Like Rhubarb and Ginger.

The various species of PTINIDÆ are very destructive insects; not only to furniture and other wood work, but also to peltry, to botanical collections, entomological specimens; and druggists have found them destroying rhubarb and ginger; they have even been found feeding on cantharides, cayenne pepper, black pepper, allspice, and their mandibles are sharp enough to cut through tin foil with comparative ease. Linnaeus, in his time, recommended a compound of arsenic and alum for their destruction. The Mr. Fox alluded to in the *Times* article, did not do a wise thing when he ordered his boy to throw the infested cigarettes into the ash barrels; had he ordered a boufire of them, it would have been more to the purpose. But, except in very extraordinary cases, we do not think that even this is necessary. Submit them to an oven heat, as high as the tobacco can bear without burning. It may improve them, as it did on the notable occasion which developed the "Irish Backguard Snail." In such emergencies, there is no use in people getting "beside themselves." In Westchester county, New York, it is said, the people attempted to destroy the "canker worm" by plowing it under—the very condition the insect would seek of its own accord, to complete its transformations; and, if found so situated as to make it possible to be plowed under, that was its very purpose. It is like throwing a duck into water with the expectation of drowning it.

Where there are only from six to ten of them in a single cigarette, treated with heat, we do not consider it entirely useless, although it might work a depreciation in its value. We found little, or no difference between the flavor of such and those that had not been infested. But where they are beyond recovery throw them into the furnace, and not into the ash barrel; for an insect that can thrive upon tobacco or cayenne pepper, would not be hurt much by dry ashes.

How to Destroy Them

This insect was probably imported from a foreign country. It has been demonstrated on various occasions, that imported insects are more destructive than our allied native species, or than they are in their own native country. As soon as the beetles are evolved they cut a whole through the wrapper and make their escape; so that the number of holes in the wrapper of a cigarette is no indication of the number of insects that may be in it, but rather of the number that have escaped; and yet, it is possible that more than one may pass through the same hole. In some cigarettes which we examined, and in which were a half a dozen holes in the wrappers, not a single insect, in any form, was present. It perhaps would not pay to unmake the infested cigarettes and make them over again; but the feces of the insects, in the form of a fine powder, is easily separated from the tobacco that remains undestroyed, and, by submitting it to a sifting process, more than enough might be saved to compensate the labor. Of course, this would involve the disintegrating of the cigarettes, and resolving their contents into a mass of smoking tobacco.

Known for More than Half a Century.

Thus far we have written, about a mile

away from our cabinet of *Coleoptera*, with the little insects, however, before us. On comparing them with specimens in said cabinet, we have no hesitation in pronouncing them *Anobium tenuistriatum* of Say, belonging to a genus commonly called "Death-watch," or "Tick-beetles." If our identification is correct, then we have had this same species in our collection for full forty years. Thomas Say died in 1833, so that this insect has been known for more than half a century. Mr. Say represents it as a common species, frequently occurring in museums; also destructive to the interior of apothecary shops, which is used as a cathartic. There is a remote possibility that it may be *Anobium striatum*, or *A. patricianum* of Europe, or a new species. Some 12 or 15 species of *Anobium* have been described as American, and about the same number as European. They are all very small insects, but working under cover, in secret, they are capable of doing a great deal of injury to whatever they infest, and this becomes more manifest, when we reflect that the ova, the larva, the pupa and the imago, are all found at the same time, in the same substance, indicating that, undisturbed, they may go on multiplying *ad infinitum*.

Intense kiln drying, we believe is the only sure means of destroying them without also destroying the infested tobacco. In our experience we have found heat the most effective means of killing insects where it can be applied.

The article from the *Times*, to which we referred, will be found under the head of "Selections" in this number of the FARMER.

REPORT ON CONDITION OF CROPS.

On wheat in India, and on freight rates of transportation companies, September, 1884. U. S. Department of Agriculture, Bureau of Statistics, New series, Report No. 11, Washington, D. C.

The general average of corn in the United States is 94, or 2½ bushels per acre for the entire breadth of the country. The yield is not less than 1,800,000,000 bushels. The product of winter wheat is above the average, and of good quality and will aggregate 500,000,000 bushels. The average condition of the whole field of cotton is 82½, though Texas is the only State below the average. The condition of potatoes averages 91 against 95 last year. The oats crop averages a yield about the same as corn, and will aggregate over 500,000,000 bushels. The general average for rye is 96, and for barley 97. Tobacco is higher than in any September since 1877, averaging 94.

England's crop of wheat for 1884 amounts to about 82,000,000 of bushels, including Ireland and the channel islands. Barley, 74,000,000, and oats 112,810,365. It is estimated that the Austrian empire can export 3,000,000 quintals (220 lbs.) of wheat, 4,000,000 of barley, 2,000,000 of oats, and have enough left for home consumption. The Russian crop is favorable, but slightly under the average. The crop of wheat in France amounts to about 108,000,000, but she can import 40,000,000 of bushels, as stocks are low compared with last year. It is said that India can export at least 50,000,000 of bushels to foreign countries, but in London this state-

ment is doubted. Australia has a surplus of 22,000,000, of which she has already exported 13,000,000. Ontario (Canada) reports the crop of fall and spring wheat at 31,730,341 bushels.

A valuable paper read at the late meeting of the American Association for the Advancement of Science, is included in this report, in which the author proposes to show that it is folly to attempt to "feed the nations of the earth," and neglecting the organization of constructive forces and the development of the highest skill in production, and that every nation must be practically self-supporting, possibly making a few exchanges from occasional surplus. We shall refer to this again.

EXCERPTS.

"Wood can be made to last as long as iron in the ground," writes a correspondent in an exchange, and at a cost of less than two cents apiece for posts of any kind of wood. He gives the process in this way: Take boiled linseed oil and stir in pulverized coal to the consistency of paint. Put a coat of this over the timber, and there is not a man that will live to see it rot.

AFTER the age of nine months a good hog may be made to weigh as many pounds as he is days old. He should be farrowed early in the spring, and slaughtered before January.

It is a well-known fact that all animals grow better and take on fat faster in warm weather than in cold, and it is well to take advantage of this fact in preparing the surplus stock for sale.

In order to secure the fastest walking horses they must be tested, and the best retained for breeding, as careful selection will result in the establishment of a breed of fast walking horses if persisted in.

To prevent foul breeds in bees Mr. J. H. Hicks, of Maryland, sets out a dish containing a solution of rock salt and water near his hives for the bees to drink, and finds that it keeps his apiaries free from the disease.

Mr. WILSON, the great grape grower of the Northwest, planted, a year ago last spring, 400,000 cuttings and grew 80 per cent. He was to graft this year from 20,000 to 25,000. The cuttings, he said, should be one-half inch from the bud.

FODDER that is properly saved, and fed in combination with clover hay and grain, is of equal value with timothy hay by weight, says Professor Sanborn, but such fodder is very different from that which is exposed to frost and bleaching rains.

The rapid growth and dense shade which buckwheat makes gives it great value as a weed destroyer. Even thistles can be kept down by it if the land is sown as soon after plowing as possible, and the first thistles that appear are pulled or cut with a hoe.

At present the manufacture not only, have all the say in regard to prices for wool, but they to a very great extent prescribe the rules under which it is bought and sold. Thorough organization and harmonious action among wool growers is the only remedy for the dictation of the manufacture we can think of.

THE TEXAS *Wool Grower* says the question is what shall I do to increase the quality of my wethers for market and when shall I ship them? Feed them and make them fat and

you can sell them at home, is the answer. There is a good home market for fat sheep, and the winter markets at St. Louis and Chicago are generally good also.

SHEEP from the facility and rapidity with which they are matured, the rapidity of their increase, their triple use for food, raiment and manure, are the most available means of supplying a deficiency of animal food. Nature and the art of the breeder have made the sheep the most perfect machine in existence for converting grass and grain into flesh.

Two men, according to a Georgia paper, caught a wild goat in the densest part of the Kinchafoonee creek swamp in that State. This goat had made his den in the forks of a tree, and when disturbed made for the creek pursued by a dog which he heroically fought. The goat is covered with long black hair, and his horns are as sharp and as pointed as a sword. All who have seen it pronounce it a species of goat never before seen in this country.

If the squash branches are vigorous and long, stretch them over a level surface and bury every fourth or fifth joint, as wherever the plant is buried new roots are formed for the better nutrition of the stem and fruit.

To use white hellebore the *Practical Farmer* says, take one heaping tablespoonful of the powder and thoroughly wet it with boiling water, using about a quart. This turn into a pail of cold water, and stir till it is thoroughly mixed.

Don't employ foul-mouthed, bad-principled men about your place. They taint everything with which they come in contact, sully the mind of innocent youth, and add loss instead of profit to the farm account.

SEE that the tomato vines are well staked, and pinch off the shoots occasionally in order to make them stocky. A vine is usually very prolific, and if well managed only a few are necessary for a full supply of the vegetable.

It has been demonstrated by careful analysis of the mixed voidings of cow, horse, sheep and pig, that 83 per cent. of the nitrogen contained in the food eaten is voided in the manure, and over 95 per cent. of the potash and phosphoric acid.

THE only safe plan for killing weeds and saving labor is to destroy them when they are young. If allowed to grow too large the work will not only be harder but cannot be done effectually.

A CORRESPONDENT of an exchange recommends storing hay and straw in alternate layers in the mow, a method especially applicable in the case of clover, cut, as it should be, just as it comes into blossom and apparently only partly cured.

IT is conceded to be unreasonable to expect large ears of corn in a hill of eight or ten stalks, but many will have that number of stems in a hill of potatoes, and then complain that their potatoes are small. If large potatoes are expected the number of stalks in each hill should be reduced to, at most, three or four.

SAXONY wool has a fine short staple; the Australian wool is longer but also fine. Combing wool, such as that from the Lincolns, Cotswolds and Leicesters, is usually about

nine inches in length. The finest of all wool is that from the families of Merinos.

ONE pint of cats, with a like measure of bran, is a day's ration in two feeds for a breeding ewe. A week after lambing, the ration should be increased by adding one-fourth of a pound of oil meal. She should also receive as much cut hay and straw as she will eat.

THE value of an ordinary ton of manure is estimated at 300 pounds solid, worth \$1.40; 800 pounds of straw and litter, worth \$1 and 900 pounds of water and useless matter; the value of the entire 2,000 pounds being \$2.40. Manures, however, vary in composition, and the figures are not reliable.

In considering the right depths to run the plow all the circumstances must be considered. It will not do to turn up too much of the cold subsoil at once. The plowing should be gradually deeper every year, in order to allow of sufficient time for the upturned soil to be reduced to a proper condition for plant food.

MILLER PURVIS, writing in the *Kansas City Live Stock Journal*, advocates crossing Merino rams on Southdown ewes to get the best breed of sheep.

THIS has been the greatest year known in the sheep and cattle export trade of Canada, the sheep shipments alone being 30 per cent. in excess of any other year.

WHAT is wanted in a sheep is a good constitution, large size, and a heavy fleece of fine wool. Plain farmers cannot afford to buy a breeding stock of pure bred animals, but they can use a full-blooded male with their best ewes.

MR. PARISH, the father of the Angora industry in Texas, according to the *Texas Wood Journal* says that when a man succeeds in grading up a flock of goats to sheet three pounds all 'round, he has a stock business that for profit will discount any other kind of stock.

WILLIAM BROWN, of the Agricultural College, at Guelph, Canada, says that in his view "there is no line of the farmer's work at the present moment, even with wool so low, that pays so well, gives so little trouble, fewer risks, earlier returns, and in most ways makes things so comfortable as wool."

ALL farmers should experiment, and especially so when it can be done at a mere nominal outlay of cash. An outlay of a single dollar secures you a package of choice seed wheat nearly 1,000 grains each, of fifteen different varieties, and a newspaper for one year. You can't afford to miss this.

SELECTIONS.

WEEVIL IN THE CIGARETTE.

THE tobacco dealers in Philadelphia and throughout the country have become greatly alarmed over the appearance among their stock of a little bug, which they call the tobacco weevil, that is causing ruin in their business. The bug is about half the size of a fly and has a sharp-pointed head, a hard shell back, small wings and is a dark brown color. It feeds and thrives on tobacco, especially on cigarettes and fine-cut for chewing, while it has also been recently discovered in natural leaf plug.

The tobacco weevil first made its appearance about two years ago, but at that time it did so little damage that nothing was thought of it, but in the last two or three months it has bred so enormously that the tobacco stores in this city are alive with the ruinous insect and dealers are losing dollar after dollar through its devastating work.

Laying Egg in Cigarettes.

J. S. Semon, a tobacco dealer on Ninth street, opposite the new Postoffice, sat at his desk one afternoon with a little glass jar in front of him. He was busily engaged shaking the bugs out of cigarettes into the jar to keep them prisoners for future inspection. He had before him a box of Vanity Fair, Sweet Caporal and Turkish cigarettes. Every cigarette was alive with the little bugs and hundreds of little white eggs, the size of a pin's point, were mixed through the tobacco.

"I found nearly two thousand of these bugs one day," said Mr. Semon, as he pointed to a bucket in the back yard. The bucket was swarming with them. "They have ruined hundreds of packs of cigarettes for me; in fact, my whole cigarette stock is spoiled, and every one who smokes cigarettes inhales the smoke from the burning bugs. It's the most remarkable thing I ever heard of or saw. A week ago my store was swarming with these bugs; every shelf was alive with them, but I have managed to get rid of nearly all. I bought a lot of insect powder which will kill any insect known but this infernal little pest. I poured an ounce of the poison on one of these bugs, but it had no effect on it and the bug simply dug its way through the yellow powder and took to its wings. Just think of smoking cigarettes full of bugs! I can't tell you why they breed in cigarettes more than in tobacco in other forms."

Causing Large Losses.

"Our store is swarming with the tobacco weevils," said Mr. Fox, of the firm of E. G. Steane & Co., on Chestnut street, below Tenth. "We've lost hundreds of dollars through their ruining stock. They eat holes in the cigarettes and lay eggs in them and we have to throw box after box of cigarettes away. If some one could devise something to banish them that person can make a fortune from the tobacco dealers. These bugs have developed enormously within the last few months and we are powerless."

At this juncture a boy brought to Mr. Fox a box of fine cut chewing tobacco. Every one of the six dozen papers was utterly ruined; the paper was perforated with holes and the tobacco was alive with the bugs, which swarmed like bees. Mr. Fox told the boy to throw the tobacco, box and all into the ash-barrel. Then came a box containing a gross of packages of cigarettes, which were also ruined, and that they went into the ash-barrel, too. "Our shelves are full of these bugs," continued Mr. Fox, "and we don't know how to get rid of them. Every day we are obliged to throw away quantities of tobacco. The loss is simply appalling. I don't know what we'll do if they keep on multiplying."

What Other Dealers Say.

David L. Ketter, at the southeast corner of Fifth and Market streets, one of the oldest dealers in the city, said that the bugs were to be found in bright leaf tobacco mostly.

"They eat the highest grades of tobacco only," said he, "and only the other day I discovered two large boxes of natural leaf plug entirely ruined. They have caused me the loss of a good many dollars, and with all my years of experience in the tobacco business I can find no remedy. They are the only species of insects that can live on tobacco and anything that can live on tobacco can't be poisoned. The only way to get rid of them is to crush them, and you might as well try to kill all the mosquitoes on a Jersey marsh as to do that." The proprietor of the tobacco store on Sixth street, near Chestnut, said that he found without any exaggeration a million bugs in a ten pound bucket of fine chewing tobacco. Many other dealers gave similar testimony. The dealers have tried to suppress the existence of these bugs, believing that smokers of cigarettes in particular would cease smoking them if the facts were made public. One dealer estimated that in this city alone the loss by the bugs on manufactured stock in the last six months would amount to more than \$25,000.

Causing Factories to Close.

A tobacco salesman from Richmond, Va., was seen by a *Times* reporter at the Continental Hotel the other night. He said :

"As far as I can learn it is impossible to account for the origin of the tobacco weevil. They are ruining the cigarette trade. I do not see why the bugs do not breed as freely in loose tobacco, but the theory advanced is that the cigarette is like a cocoon and the bug feels more safe inside of a cigarette than in a package of loose tobacco while laying its eggs. Two cigarette factories in Richmond recently were obliged to close and move to new quarters on account of the old buildings being so infested with the weevil that every particle of stock manufactured was ruined. They are so thick in Richmond now that it is impossible to ship goods that are perfectly free from them and if one bug gets into a box of tobacco it's not long before there will be a thousand in that box. The tobacco-growers have tried to discover the origin of the weevil, but it baffles every effort to trace it and cause its annihilation."

THE CULTURE OF CARP.

While a great many of our readers have heard of the "Lancaster Piscatorial Company" and of their German carp ponds, a short distance north of this city on the Mannheim pike, a comparatively small number are familiar with their location and extent, and a still smaller number with the fact that they are the largest, best arranged, best kept, and best stocked carp ponds in the United States, not even excepting the Government ponds at Washington.

The Lancaster Piscatorial Company was organized two years ago and consists of Mr. David M. Mayer, president; Dr. Miles L. Davis, secretary and director, and Dr. S. T. Davis, treasurer.

The ponds are located on a five-acre tract of swamp and meadow land belonging to D. L. Mayer, and are supplied with an abundance of water flowing from six large springs, all of them being controlled by means of pipes and stops and drains, so that the water of one or all of the ponds can be raised or lowered at pleasure. The company has secured a twenty

years lease of these springs and the five acres of land adjoining.

There are at present four large ponds and several small ones in use—the largest containing two and a half acres of water surface, with an island near the centre, covered with shrubbery, flowers and choice grasses. The water in this pond varies in depth from one to six feet, the deeper portions being intended as winter quarters for the fish, they being thus enabled to get below the frost line, no matter how severe the weather may be, and there doze away in torpor the long winter months.

The Fish House.

Adjoining this pond is the fish house, a frame building 20 feet in width and 100 feet long. It is provided with a large pool constructed of boards and extending the full length of the room in which are placed the "stockers" or young fish that have attained a length of 1½ to 4 inches. The pool is so arranged that the water can at any time be drained off, so that the fish may be easily taken from it for transportation to other ponds. The fish house contains also a large boiler or steamer for heating the water in cold weather. The fish instinctively seek the warmer water and assembling in numbers in the warmer part of the pool, they are easily caught in nets and placed in large cans in which they are transported to other ponds in distant parts of the country. The steamer is also used for cooking food for the fish in the several ponds in summer time.

East of and adjoining the main pond, is the spawning pond. This is 130 feet in length by 10 feet in width. In it have been placed only fifteen large fish male and female, averaging about 7 pounds weight each. They breed so rapidly that there are already many thousands of small fry in the pond, which by next summer may be utilized as "stockers." The water in the pond is in general from 12 to 15 inches in depth, and in it are growing considerable quantities of swamp willow and other shrubbery, on which the fish feed and among which they spawn and shed their milt. There is a deep hole in this pond for the fish to winter in.

A third pond adjoining the above, is in a more natural condition than either of the others, being in good part merely swamp land, overflowed by a low damming of the springs. The bottom of the pond is full of rushes, aquatic grasses and small shrubs of various kinds, on which the carp delights to feed. The pond is perhaps 400 feet long and 200 feet wide. It contains not less than 10,000 carp from two to four years old, besides many thousand of small fry. Some of the larger fish are 27 inches in length and weigh from 6 to 7 pounds.

How the Fish are Captured.

During the past few days the company has had a number of men employed in draining off the water of the two larger ponds, for the purpose of catching and assorting the fish according to their size. As the water is very gradually drained off the fish seek the deep holes, above referred to, where they are easily caught in drag nets, the meshes of which are sufficiently large to allow all the small fry to escape, very few less than two inches in length being taken. From the two acre pond, Dr. Davis states, there were taken 6,100 carp of

all sizes, while thousands upon thousands of small fry escaped through the meshes of the net.

A representative of the *Intelligencer* visited the premises some time ago, at which time half a dozen men were engaged in draining the upper pond. Nearly all the water had been drained off except in the deeper part near the lower corner, and in another deep place which had been dug out around a spring that rises from the bottom of the pond. The men were fishing this spring when our reporter was there. They used a drag net ten or twelve feet long and about half as wide. At every haul they caught from one to two buckets full of fish, from two inches to eighteen inches in length. In two hours' time there must have been ten bushels of fish taken in the net. These were carried out upon the bank and assorted, the smaller ones or "stockers" being thrown into large tin cans containing water, and carried thence to the fish house, into which they were dumped to have them handy when the time comes for shipping them to other ponds. The two-year olds, or "spawners" were placed in one of the small ponds, and the large fish intended for market, and weighing from three to seven pounds, were placed in a perfectly clear pool of spring water adjacent to the fish house. This pool is 50 feet long by 13 feet wide. It is built of brick and has a depth of not more than 3 feet. The brick floor and wall are laid in cement, so that it is perfectly clean and water-tight. It is fed with pure water from a two-inch spring that boils up from a walled well four feet deep near one end of the pool. This water has a regular temperature of 52 degrees.

The object in placing the marketable fish in this pool is to cleanse and purify their flesh from the taint of mud or the vegetables on which they feed while in the natural pools. It is well known that milk and butter and even flesh of animals taste of the food upon which they feed; and hence an objection urged against carp is that as they inhabit muddy places and feed on aquatic plants their flesh is unpleasantly tainted with them. It is believed that by placing them in the purifying pool and feeding them on bread, boiled potatoes and other pure food, their flesh may be made as sweet as that of pond trout.

The Three Varieties of Carp.

There are three well known varieties of German carp: the "scale" carp, with regular concentrically arranged scales; the "mirror" carp, so called on account of the large mirror like scales which run along the sides of the body in a few rows, leaving the rest of the body bare; and the "leather" carp, which has no scales at all, or only a very few on the back.

There is not much difference in the merit of these three varieties of fish, though the mirror carp, or Spiegelparpf, sells at a higher price than the others. Stockers sell at from \$5 to \$15 per hundred; and spawners of two years old at \$2 per pair. The larger and older fish at still higher figures.

The draining of the water from the pond gives the visitor an opportunity to see the manner of their construction. The walls or banks of them are built of peat cut from the meadow in which the ponds are located. The

inner surface of the walls are lined with potter's clay, which is also found in abundance on the land leased by the company. The outer surface of the walls are riprapped with stone and planted with dwarf English basket willow, the tangled roots of which do much in strengthening them. The upper pond, or that nearest the springs which feed them, has a higher bottom than the one next below it, and the third is lower than the second, and so on down to the fish house, which is lower still. By this arrangement the ponds are fed by the same water which passes successively from the upper to the lower ones and thence into the stream below.

To avoid the possibility of an overflow, even during the heaviest rainstorms, large ditches have been dug, with properly arranged sluices, to carry off all surplus water.

The company have not yet placed any of their carp on market for table use, as they have found it more profitable to sell them to persons going into carp culture, of which there are now great numbers in all parts of the country. This winter, however, it is probable the company will place their fish on the market, as besides the hundreds of thousands now in the ponds that have been described, they have over 12,000 carp in Mr. Hershey's ponds, just within the city limits, many of them being of marketable size. Our citizens will then have an opportunity of judging for themselves of the merit of German carp as an edible fish.

A Successful Enterprise.

The Piscatorial Company has been at several thousand dollars expense in fitting up these ponds, and although they have not yet placed a fish upon market, we are informed that their receipts almost equal their expenditures. Besides the money they have made by selling fish to stock other ponds they have out from their own ponds immense quantities of the purest ice. Last winter they built a temporary frame ice house near the principal pond, and filled it with 1,400 tons of ice, and sold in addition 1,000 loads more which was brought and hauled to town by Messrs. Spranger, Keiker, Royer, Demuth and others. All this ice was cut from a single pond.

The company is now engaged in the erection of a large new ice house, 100 feet long and 60 feet wide, capable of holding 3,000 tons of ice. It will be finished by the time cold weather sets in, and should the winter be a favorable one it will not only be filled, but will be stacked up on the banks as it was last winter, for the use of others. Altogether the financial outlook of the company is very favorable, as by next spring they will have cleared all expenses and have a clear seventeen year lease, during which time they can count their gains.

We cannot close this sketch better than to say a good word for J. Martin Eckman, the manager in charge. He is the right man in the right place. Intelligent, industrious, reliable and deeply interested in fish culture, he is withal a jolly good fellow, able and willing to give information to those who seek it of him. With his family he lives pleasantly in a neat cottage erected on the company's grounds. "May he live long and prosper."

IS COLD WATER INJURIOUS TO PLANTS?

Those who study works on horticulture by different writers will discover many opposing views in respect to the modes of caring for, and the treatment of plants. The proper temperature for water when applied to plants, has been frequently discussed by different writers: some contend that cool water just drawn from a well or cistern, should never be showered upon plants, but that it should first be heated to the temperature of the room in which the plants are standing. Others, with equal zeal, claim the cold water will not injure the plants in the least, contending that the water will assume the right temperature before injury is done the plant. Now which is right? We have experimented in this matter to a considerable extent, in order to satisfy ourselves as to which of these two views is correct. In the month of December we took from our collection twelve large geraniums, and placed them by themselves in the conservatory: six of these we watered with cold water, drawn from a hydrant pipe at the temperature of forty-five degrees, and the other six were supplied with water from a barrel standing in the conservatory, and was of the same temperature of the house, that is from sixty degrees to eighty degrees. The plants watered with the cold water gave little if any bloom throughout the winter, while the six geraniums watered from the barrel grew finely, and bloomed profusely.

Always water your plants in winter time with lukewarm water, if you would have a profusion of flowers, and thrifty-growing plants. The water should be of the same temperature as the room or place in which the plants are kept. There is no theory about it, this is a practical fact.

ABOUT FRUIT TREES

I give personal experience for fifty and history for a hundred years to prove that the disease known as "yellows" in the peach tree and "blight" in the pear tree are on the increase; and I would here take opportunity to say that these shows are merely symptoms of a disease in its last and final stage, and ought to have been prevented by apprehension of the disease in a former stage, overlooked and unknown.

To seek for a remedy for "yellows" after it has thus appeared is too late for anything to be available; while to find a preventive sooner is the part of wisdom and the only possible remedy. When yellows appears, it is positive proof of constitutional taint, and however much may be done to ameliorate, nothing is available to cure that which has come to pass. No tree ever shows the symptom we call yellows until it is constitutionally affected, not only in its own life, but also in its seed, from which a succession is procured. This is just why we find the yellows on the increase, because the taint is in the seed, from generation to generation, so that many orchards die before ever bearing a crop, while others may be so far assisted that they will bear a crop or two at some rate, by which they become so further weakened as not to be able to ever recover to bear another.

Now, the peach derived from the almond, is susceptible of being improved by culture up

to a certain degree of perfection as long as the same means that brought perfection out of imperfection is continued and moderation in our designs maintained; but just as soon as we aim above the possibilities of nature, or fall below its requirements that has tended to the perfection attained, a marked degree of disease becomes apparent.

But why do we not know that any deviation from nature's balance is disease? A fat hog or horse, or person, is not a healthy hog, horse, or person, but a person or animal forced out of nature's medium toward some perjured perfection. For some purpose it may be called a perfection, for this is a quite indefinite term; but for the good of the nature of the individual it is just so far an imperfection that will, if not prevented, run back to its natural standard. I know full well that if I should say to the amateur fruit grower that his fine productions were unnatural, and consequently, in the light of natural philosophy, symptoms of inherent disease, he would not take quite kindly to the idea, but might tell me they were improvements on nature, which, for his purpose, they are, but not for nature's purpose. Disease is any departure from nature's primary fiat, and must be maintained by the means used to originate it. If the changed condition renders the subject liable to other disease, we must set one disease to cure another. But never imagine for a moment that art is an improvement on nature, and not a diseased condition of it. The history of the peach tree amply proves all that I claim. The first disease (or departure from nature) was a profit to us in an improved fruit, and while our desires were thus satisfied and the means of change kept up, our position was a tenable one; but push for a still greater perfection, being a greater degree of departure from nature, gives us a different stage of the one disease, and the last stage we call the "yellows," from which there is no return to health, and disease and death are established.

Now, what I have said of the peach is equally true of the pear, and the "yellows" and pear "blight" are but varied symptoms of one disease acting upon different subjects; which disease is simply a departure from nature, the first symptom of which is a good fruit to man, and the last symptom is "blight" of the branches of the tree and death in the end. To one who can trace effects to their causes, all the degrees between our imaginary perfection and the end of our liberties with nature's facts may be marked at every stage. We have now millions of peach trees in a state of disease, bearing fruits of many degrees of perfection, as we look upon the subject; but all are more or less diseased, according to the degree of departure from nature's balance between our finest fruits and her original fiat.

I now lie wide open to all comment that may be brought to bear upon this view of the inevitable truth of fruit culture, and though it may ill suit the amateur culturist, it is that to which nature will eventually bend the will of man, if not by reason, still by the force of fact. Art is but the handmaid of nature, and the nearer its accords with its mother energy in practice, the greater the duration of the liberties afforded us through its means.—S. P. Larkin, in *Germanstown Telegraph*.

HABITS OF THE BURROWING OWL OF CALIFORNIA.

I wish to state a few facts about the Burrowing Owl (*Athene cunicularia* Molina) that lives in California. I had almost constantly for four years opportunities of observing the habits of this little owl, which is really one of the most notable features in the natural history of California. A colony of these owls lived within one hundred yards of my cabin while I passed a frontier life; and they were very common everywhere in that vicinity. I have seen them every day for years, hundreds and perhaps thousands of them in all. Where I have seen them, they always live in the deserted or unoccupied burrows of the Ground Squirrel (*Spermophilus beecheyi*). I came to the conclusion that they were able to drive out the Spermophilus from their habitations, but I am not certain of the fact. It is true that there were, in that region, always a large number of unoccupied burrows wherever there was a colony of Spermophilus; so that there was no lack of unoccupied habitations for the owls to take possession of. But I have noticed that wherever there was a large number of the owls, very few or no Spermophilus lived. One or two owls would occasionally be seen among a colony of Spermophilus, but they never appeared to live in the same hole or burrow with the squirrel; and I have never seen a squirrel enter a burrow that was occupied by owls, however much tempted by fear he might be to enter the first hole he could come to. True, the Spermophile never likes to enter any burrow but his own, and will run just any number of inviting entrances in order that he may at last hide himself in his own domicile. But aside from this, I believe that the squirrels are afraid of the owls, and do not dare to intrude upon them. The notion that the Athene digs its own burrow appears to me apocryphal and unreasonable. I have never seen any evidence of it. Negative evidence proves nothing; but yet the absence of facts is strong presumption against their existence, and it would be strange that I should never have seen any evidence of their digging powers if they have any. After a shower of rain, one sees fresh earth thrown out around the mouths of the burrows of the Spermophilus, but never anything of the kind around the burrows of the owls. They are not constituted for digging, and there is no necessity for it; they can always find any number of holes ready-made for them. That they live in peace and amity with the rattlesnake, I believe to be another error and stretch of the imagination. Rattlesnakes are very abundant where I lived, and I killed one or two almost every time that I rode a mile or more from the house, yet I never saw a rattlesnake near a squirrel's hole but once, and that hole was a deserted one. I once found a large rattlesnake swallowing a squirrel (*Spermophilus beecheyi*) that it had caught, in the centre of a colony of squirrels, but several yards distant from any "squirrel-hole."

I once took pains to dig out a nest of the *Athene cunicularia*. I found that the burrow was about four feet long, and the nest was only about two feet from the surface of the ground. The nest was made in a cavity in the ground, of about a foot in diameter, well

filled in with dry soft horsedung, bits of an old blanket, and fur of a Coyote (*Canis latrans*) that I had killed a few days before. One of the parent birds (male or female?) was in the nest, and I captured it. It had no intention of leaving the nest, even when entirely uncovered by the shovel, and exposed to the open air. It fought bravely with beak and claws. I found seven young ones, perhaps eight or ten days old, well covered with down, but without any feathers. The whole nest, as well as the birds (old and young), swarmed with fleas. It was the fifth nest that I ever saw. In the passage leading to the nest there were small scraps of dead animals; such as pieces of the skin of the antelope, half dried and half putrid, the skin of the coyote, etc.; and near the nest were the remains of a snake that I had killed two days before, a large *Coluber*? two feet long. The birds had begun at the snake's head, and had pecked off the flesh clean from the vertebrae and ribs for about one-half of its length; the other half of the snake was entire. The material on which the young birds nested was at least three inches in depth. I do not remember the time of the year.

The Burrowing Owls do not migrate. Where I lived they were as numerous in winter as in summer. Perhaps in low, flat plains, that are deluged or inundated by water in the winter, the little owl is obliged to have a far drier location, but I have never seen any such migration. They always remain in or near their burrows through the day, never leaving them to go any distance except when disturbed, when they make a short crooked flight to some other hole near by, and when driven from this last one return to the first again. When the sun sets they sallly forth to hunt for food, etc., and are all night on the wing. I had seen them and heard them at all times of the night and early in the morning. They are not strictly nocturnal, for they do not remain in their nests or burrows all day, but their habits, in this respect, are about the same as those of the other owls, as *Strix pratincola*, *Agelaius virens*, etc., or of the domestic cat. There are very few birds that carry more rubbish into the nest than the *Athene*; and even the vultures are not much more filthy. I am satisfied that the *Athene cunicularia* lays a larger number of eggs than is attributed to it in Dr. Brewer's work. I have frequently seen, late in the season, six, seven or eight, young birds standing around the mouth of a burrow, isolated from others in such a manner that I could not suppose that they belonged to two or more families.—*American Naturalist*.

OUTLOOK OF THE CROPS.

The Department of Agriculture, in Washington, reports that the condition of cotton on the first of September was lower than on the 1st of August by reason of drought, which was severest in Texas, yet felt in every State east and north to North Carolina. The apprehension that too succulent early growth would wilt under higher temperature and absence of rain has been realized too generally. Local areas on the Atlantic coast appear to have had sufficient moisture; at a few points too much on low lands. The effect of these meteorological changes has been the wide

prevalence of rust and the shedding of leaves and young bolls. In light soils the fruiting will be hastened, the top bolls already forming. In those of greater moisture there is a strong weed, and with deferred frosts a good crop may be made. There are a few losses by the caterpillar. When it has appeared it was promptly met by poisonous applications as a rule. The bollworm has been more abundant than usual, and has not had treatment sufficient prompt. The average condition for the whole field, which was 87 in the preceding report, is reduced to 82, though Texas is the only State below that average.

The product of winter wheat is above the average, and is generally of good quality, except where injured by sprouting in the shock. The rate of yield is not far from an average of 13 bushels per acre. The results of the harvest of spring wheat are not yet complete, and yet the product cannot be precisely indicated. It is probable from the reported condition of the crop already harvested and threshed that the aggregate will vary little from 500,000,000 bushels. The reports of much higher figures are sensational and misleading, and utterly unworthy of credence. The general average condition when harvested is 98, against 83 last year. The wheat States of highest condition are California, Wisconsin, Minnesota, Pennsylvania, Kentucky, Tennessee and Oregon.

The corn crop is in better condition than in any year since 1886. The general average is 94. It was 84 last September. It promises to produce an average yield of 26 bushels for the entire breadth, or not less than 1,800,000,000 bushels. It will make the largest aggregate of quantity ever reported in the history of the country.

The oats crop averages a yield per acre about the same as corn and makes an aggregate exceeding 500,000,000 bushels. Its condition when harvested was 95, which is lower than for two previous years, but higher than for prior years since 1878.

Barley averages 97, against 100 last year and 95 in 1882. It will average about 22 bushels per acre.

The general average for rye is 96, and for buckwheat 93, which indicates a medium crop of about 12 bushels per acre.

The condition of potatoes averages 91, against 95 last year. It will be an abundant crop, but not so large as the last. There is some complaint of rot in New England and a little in New York. There is a wide range of condition, running down to 52 in Ohio, while it is 94 in Michigan, the same in Pennsylvania and 86 in New York. There is a fine crop west of the Mississippi.

The condition of tobacco is higher than in September of any year since 1881. It averages 94 instead of 80 last September. Massachusetts, 105; Connecticut, 103; New York, 98; Pennsylvania, 99; Wisconsin, 100. The cigar tobacco thus stands comparatively high. Maryland, 91; Virginia, 94; North Carolina, 95; Kentucky, 95; Tennessee, 105; Ohio, 63.

The London agent of the Department cables to-day as a result of statistical investigations that the year will not be one of superabundance; that European wheat, though above an average in product, will be less than the aggregate of 1882. European importing

countries need 200,000,000 bushels above production; European countries exporting can supply 80,000,000 bushels, leaving 140,000,000 bushels to be obtained from other continents. Stocks are not excessive. There is an increased consumption of wheat, and it is the general opinion that the lowest prices have been reached. Potatoes and rye are less abundant than last year.

GETTING RID OF STALKS.

Where large crops of corn are raised, and especially where shucked out, leaving the stalks standing in the field, it is often quite a task to get entirely rid of them. Every successful corn-raiser knows that it always pays to take pains to have his corn land as clean as possible. Masses of weeds or long coarse stubs or stalks are not only vexatious, but cause more or less loss, by treading up hills of corn in plowing or cultivating during the spring and summer. Experience teaches us that a lot of coarse weeds, or long corn-stalks, turned under by the plows in the spring will not rot, but stay there seemingly tougher than ever, and then it often happens—more so than is pleasant—that these stalks will be under a hill of corn, and then in plowing across them we are almost certain to have them catch on the point of the plow or cultivator and tear up the hill of growing corn. Hence, considerable pains must be taken to have the corn-lands as clean as possible, especially of long weeds or corn-stalks.

There are various ways of getting rid of them. Some harrow down, taking one row at a time, and cleaning the harrow whenever full, and afterwards burning. This, to say the least, is not only a slow, but also a slovenly way of doing the work as the harrow leaves too many stalks, either torn up by the roots and lying flat on the ground, or partially standing. The work cannot be done as clean as it should be, and, of course, is unsatisfactory.

Others take a good sharp hoe, or corn knife, and cut the stalks down one hill at a time, after which they are raked up into windrows and burned. This is quite an improvement on harrowing, but still requires considerable time.

A much faster way, if they are to be broken down, is to take a long heavy stick of timber, twelve or sixteen feet long, and six or eight inches through, depending somewhat upon the strength and condition of the team; about three feet from each end cut notches, under which fasten a good chain, and to the other ends of which fasten the double-trees. A man and team in this way can break down the stalks very rapidly. Or if you have boys one horse can be fastened to each end, and then with two boys to drive, the work can be readily done. After they are broken down a horse spring (with) hay rake, or a strong riding rake can be used to rake them together when they can be burned.

All of these plans have two operations. First, to break them down, and then to rake up and burn them. The work should be done when the ground is frozen hard, and the stalks dry, as the stalks will not break readily when damp or soft.

The best plan of all is to use a stalk cutter, by this means the stalks are cut into small

pieces and can readily be plowed under. The work all being done at once—that is one operation gets the stalks out of the way of the plow.

The manurial value of dry-cut corn stalks of course is not very high, hardly as high as the ashes obtained by burning the stalks. But the burnt stalks yield a very small quantity of ashes, so that the question of manure cuts a very small figure. I believe myself that the stalks cut up well with a corn-stalk-cutter and plowed under are of considerable more value than the ashes obtained by burning. And as the work can be done with a stalk cutter very rapidly and well at one operation, and the work be better, and the land in a better condition or after cultivation, it is certainly good policy to use them wherever practicable, and especially where a large acreage is devoted to the crop. As the work need not be pushed if taken in time, two or three farmers can very easily combine to purchase a cutter and in that way divide the expense.—*N. J. Shepherd, in the Western Plowman.*

FEEDING CORNSTALKS.

Since the use of itinerant threshing machines driven by steam is becoming common, there is danger of farmers throwing aside the smaller horsepower which they have formerly used, and which may be applied to driving stalk cutters. There are too many advantages resulting from the short dropping of corn-stalks, as compared with the wasteful practice of feeding them whole, for any good farmer to omit it when it can be accomplished. Intelligent farmers, who have tried both ways, inform us that the feeding value of the stalks by cutting half an inch or less in length, is according to estimate at least two and a half times greater than when mowed, and this estimate accords with our own repeated experiments. This estimate was made from the use of good, well cured stalks, but it would not apply to fodder which has been exposed to rain, and become discolored and rotted, and which would be of little value in either condition. Another important advantage of cutting short is the improved character of the manure, as every one will appreciate who has attempted to pile, load or spread manure containing a large portion of tough cornstalks.

The preceding remarks apply to dry stalks, and they are not less applicable to chopped ensilage. The latter has, in fact, some advantages over the dry feed in several ways. The green stalks cut more easily, or nearly twice as fast with the same power; the food more palatable and easily digested; and it is stored in far less space, and without exposure to the weather. But for feeding value, there is not a great difference between well preserved and finely cut dry fodder and succulent ensilage. Which mode of feeding is adopted is not of great importance, but in any case feeding the stalks whole should never be practiced.

For farms of moderate size, a two-horse lever or tread power will accomplish all that is necessary in the way of chopping fodder, where the threshing is performed by traveling steam threshers. Two horses, with the best ensilage cutters advertised in our columns, of suitable size, will cut a ton of dry stalks in twenty minutes, and a ton of dry stalks in a

somewhat longer period. The latter may be done on rainy days or in winter, as the feed may be needed, and the feed given to animals in tubs made by sawing barrels in two, or in the feeding troughs in stalls. If cattle do not eat it freely, it is because the stalks have not been cured in a perfect condition. Animals are not fond of half decayed fodder. Large farms will require more efficient machinery.

Of the millions of farmers who raise corn and feed stalks to their cattle, the great majority still feed stalks uncut, and a large portion are half rotten by rains. The aggregate loss by this management to the farmers of the Union is enormous. It is doubtless a moderate estimate to put the whole amount of corn-stalks subjected to this treatment at twenty million tons, but if only half as much, it is a matter of some importance whether this aggregate, now worth say thirty million dollars, might not be at least doubled in value by the treatment we have described, and made sixty or seventy millions. We do not give these numbers as approaching accuracy, but to illustrate the importance of paying more attention to the subject. As the drouth has cut short the fodder supply in many parts of the country this season, it may be well to look towards some provision for saving the existing supply.—*Country Gentlemen.*

UTILIZING STRAW AND STUBBLE.

In California the waste from the harvesting of grain is allowed to reseed the land, and a second or "volunteer" crop is often raised without any plowing or additional seeding. The cold winters on the Atlantic slope, in most of the States, would render this sort of seeding unproductive, except in the case of wheat and rye, which are winter-proof. It would, doubtless, surprise many farmers to know that, by plowing their wheat and rye stubble in the autumn, the land would be reseeded with those grains from the waste of harvest. Straw can be turned to such good account for fodder in winter that it should be in the best form. There will be more and better grain by cutting it as soon as it begins to turn white, and the straw will be in a much more valuable condition. Farmers should take pains to secure their grain crops at this period of growth. Straw is worth much more to feed than simply to throw into the barnyard to rot for manure. Fed with a little grain it will keep stock in as good condition as, if not better than, hay alone, and the manure will be more valuable than from hay alone.

It is evident, then, that by harvesting the straw when in the best possible condition a large amount of stock may be kept on the farm, and the farmer can thus add to the value of the manure pile; or he may, if he choose, utilize his improved straw for fodder and sell a portion of the hay, letting the straw and some grain take its place. The day for burning straw or letting it go to waste for the man who has any wisdom is gone by. This fact is more emphatic, because meats of all kinds are so high and the experience of some farmers has shown that by good management, as I have indicated, the straw may be turned to a valuable account in the rearing of animals and in enriching the farm. This stubble and straw, cut when full of juices, is worth

more for fertilizing the soil to plow under, and it will pay to turn it under as soon as can be done, while it retains its moisture and the juices stored in it. Such stubble is quite an important factor for the next crop, whereas an old and dried-up one is comparatively worthless.—*Rural New Yorker.*

A CHAPTER ON FLIES.

The subject of flies becomes of vast amount to a Pharaoh, whose ears are dimmed with the buzz of myriad winged plagues, mingled with angry cries from malcontent and fly-pestered subjects; or to the summer traveler in northern lands, where they oppose a stronger barrier to his explorations than the loftiest mountains or the broadest streams; or to the African pioneer, whose cattle, his main dependence, are stung to death by the Tsetse fly; or the farmer whose eyes on the evening of a warm spring day, after a placid contemplation of his growing acres of wheat-blades, suddenly detects in dismay clouds of the Wheat-midge and Hessian-fly hovering over their swaying tops. The subject, indeed, has in such cases, a national importance, and a few words regarding the main points in the habits of flies—how they grow, how they do not grow (after assuming the winged state), and how they bite, may be welcome to the readers of the *Naturalist*.

The Mosquito will be our first choice. As she leaps off from her light bark, the cast chrysalis skin of her early life beneath the waters, and sails away in the sunlight, her velvety wings fringed with silken hairs, and her neatly bodiced trim figure (though her nose is rather salient, considering that is as long as long as her entire body), present a beauty and grace of form and movement quite unsurpassed by her dipterous allies. She draws near and softly alights upon the hand of the charmed beholder, subdues her trumpeting notes, folds her wings noiselessly upon her back, daintily sets down one foot after the other, and drives through crushed and bleeding capillaries, shrinking nerves and injured tissues, a many-bladed lancet of marvellous fineness, of wonderful complexity and fitness. While engorging herself with our blood, we will examine under the microscope the mosquito's mouth. The head is rounded, with the two eyes occupying a large part of the surface, and nearly meeting on the top of the head. Out of the forehead, so to speak, grow the long, delicate, hairy, antennae, and just below arises the long beak which consists of the bristle-like maxilla and mandibles, and the single hair-like labrum, all which five bristle-like organs are laid in the hollowed labium. Thus massed into a single awl-like beak, the mosquito, without any apparent effort, thrusts them into the flesh, and by aid of the sucker-like expansion of the end of the labium, draws in the blood through the channel formed by the five bristles and their sheath. Her hind-body may be seen filling with the red blood, until it cries quits, and the insect withdraws its sting and flies sluggishly away. In a moment the wounded part itch slightly, though a very robust person may not notice the irritation, or a more delicate individual if asleep; though if weakened by disease, or if stung in a highly vascular and sensitive part, such as the eyelid, the bites become really a serious matter. Multiply the

mosquitoes a thousand fold, and one flees their attacks and avoids their haunts as he would a nest of hornets. Early in spring the larva of the mosquito may be found in pools and ditches. It remains at the bottom feeding upon decaying matter, thus acting as a scavenger, and in this state doing great benefit in clearing swamps of miasms, until it rises to the surface for air, which it inhales through a single respiratory tube situated near the tail. When about to transform into the pupa state, it contracts and enlarges anteriorly near the middle, the larval skin is thrown off, and the insect appears in quite a different form. The head and thorax are massed together, the rudiments of the mouth-parts and of the wings and legs being folded upon the breast, and there are two breathing tubes situated upon the back instead of the tail, which ends in two broad paddles; so that it comes to the surface head foremost instead of tail first, a position according better with its increased age and experience in pond life. In a few days the pupa skin is cast, the insect, availing itself of its old habiliments as a raft upon which to float while its body is drying, grows lighter, and its wings expand for its marriage flight. The males are beautiful, both physically and morally, as they do not bite; their manners are more retiring than those of their stronger minded partners, as they rarely enter our dwellings, and live unnoticed in the woods. They may be easily distinguished from the females by their long maxillary palpi, and their thick, bushy, feathered antennae. The female lays her elongated oval eggs in a boat-shaped mass, which floats on the water. A mosquito lives three or four weeks in the water before changing to the adult or winged stage. Just how many days they live in the latter state we do not know.

Our readers will understand then, that all flies, like our mosquito for example, grow while in the larva and pupa state, and after they acquire wings do not grow, so that the small midges are not young mosquitoes, but the adult winged forms of an entirely different species and genus of fly, and the myriads of small flies, commonly supposed to be the young of larger flies, are adult forms belonging to different species of different genera, and perhaps of different families of the sub-order of Diptera. The typical species of the genus *Culex*, to which the mosquito belongs, is *Culex pipiens*, described by Linnaeus, and there are already over thirty North American species of this genus described in various works.

The Black fly is even a more formidable pest than the mosquito. In the northern, subarctic regions, it opposes a barrier against travel. The Labrador fisherman spends his summer on the seashore, scarcely daring to penetrate the interior on account of the swarms of these flies. During a summer residence on this coast, we sailed up the Esquimaux river for six or eight miles, spending a few hours at a house situated on the bank. The day was warm and but little wind blowing, and the swarms of black flies were absolutely terrific. In vain we frantically waved our net among them, allured by some rare moth; after making a few desperate charges in the face of the thronging pests, we had to retire to the house, where the windows actually swarmed with them; but here they would

fly in our face, crawl under one's clothes, where they even remain and bite in the night. The children in the house were sickly and worn by their unceasing torments; and the shaggy Newfoundland dogs, whose thick coats would seem to be proof against their bites, ran from their shelter beneath the bench and dashed into the river, their only retreat. In cloudy weather, unlike the mosquito, the black fly disappears, only flying when the sun shines. The bite of the black fly is often severe, the creature leaving a large clot of blood to mark the scene of its surgical triumphs. E. T. Cox, of New Harmony, Indiana, has sent us specimens of a much larger fly, which Baron Osten Sacken refers to this genus, which is called on the prairies, the Buffalo Gnat, where it is said to bite horses to death. Westwood states that an allied fly (*Itogis Calumbascheus* Fabr.) is one of the greatest scourges of man and beast in Hungary, where it has been known to kill cattle.

We now come to that terror of our equine friends, the Horse-fly, Gad, or Brezee-fly. In its larval state, some species live in water, and in damp places under stones and pieces of wood, and others in the earth away from water, where they feed on animal, and, probably, on decaying matter. B. D. Walsh found an aquatic larva of this genus, which, within a short time, devoured eleven water snails. Thus at this stage of existence, this fly, often so destructive, even at times killing our horses, is beneficial. We have found a larva which is, probably, a young horse-fly, living in abundance on the under side of the stones in a running brook, at Burkesville Junction, Va. The body was smooth, over two inches in length, and with a few fleshy filaments at the tip. Each segment is enlarged posteriorly, aiding the creature in moving about. During the hotter parts of summer, and when the sun is shining brightly, thousands of these horse-flies appear on our marshes and inland prairies. There are many different kinds, over one hundred species of this genus *Tabanus* alone, living in North America. Our most common species is the "Green-head," or *Tabanus lineola* Fabr. When about to bite, it settles quietly down upon the hand, face or foot, it matters not which, and thrusts its formidable lancet jaws deep into the flesh. Its bite is very painful, as we can testify from personal experience. We were told during the last summer that a horse, which stood fastened to a tree in a field near the marshes at Rowley, Mass., was bitten to death by these green-heads; and it is known that horses and cattle are occasionally killed by their repeated harassing bites. In cloudy weather they do not fly, and they perish on the cool frosty nights of September. The Timb, or Tsetse-fly, is a species of this group of flies, and while it does not attack man, plagues to death, and is said to poison by its bite, the cattle in certain districts of the interior of Africa, thus almost barring out explorers. On comparing the mouth-parts of the horse-fly, we have all the parts seen in the mosquito, but greatly modified. Like the mosquito, the females alone bite, the male horse-fly being harmless and frequenting flowers, living upon their sweets.—*American Naturalist.*

Artichokes are being cultivated more and more every year as food for stock.

SUPERPHOSPHATES FOR WHEAT.

One of the most remarkable changes that has taken place in our agriculture during the past eight years is the general use of superphosphates for winter wheat. That it pays the farmers to use it, there can be no doubt. Farmers are not inclined to make accurate experiments; but they do not continue to pay out money year after year for an article the use of which is unprofitable. How long the use of phosphates will continue profitable, will depend on the amount of organic matter existing in the soil, and upon the use that is made of the increased crops obtained from the use of the phosphates. If all the crops are sold of the farm, we should soon, except in rare cases, so far impoverish the soil that profitable crops could not be grown. On the other hand, if we use the money obtained from increased crops of wheat, barley, potatoes, vegetables, etc., to buy a small amount of bran, cotton-seed cake, mall-sprouts, etc., to feed out in connection with our straw, corn-fodder, clover hay, etc., the use of phosphates will enrich rather than impoverish the land.

Year before last the wheat crop in this section was the best I have known for thirty-two years. The Deacon has lived here much longer than this, and he says he has never before known so good a crop. And farmers who cleared up the land from the original forest say the same thing. One of them told me—and he is a reliable man—that he got fifty hundred bushels of wheat from three acres. It was not phosphates in this case; he drilled in ashes and plaster; but it was not ashes and plaster that produced the crop. Whatever the cause, it is still evident that our soil is still capable of producing crops of wheat.

One thing is certain, our farmers as a rule are working their land better than formerly. We have better plows, better cultivators, better harrows, better rollers, and better horse-hoes, though the latter are not half as good as they ought to be. We do more fall plowing. Even the Deacon harrowed his corn stubble last fall, and got it ready to drill in oats this spring. We are getting more and more in the habit of preparing our land in the autumn.

—*American Agriculturist.*

FACTS ABOUT IRRIGATION.

It is very evident from common experience that injurious droughts are increasing in frequency, and the careful consideration of the subject will develop the following simple but significant truths:

That whatever the cause of this deficiency of moisture, whether from the destruction of the forests or not, the simplest and cheapest remedy at the hands of the agriculturist is irrigation.

That whenever a supply of water can be obtained, the cost of pumping it will not exceed three cents per 1,000 gallons for an amount of 10,000 gallons per day pumped to a height of 50 feet above the surface of the water, which cost will include the necessary repairs and depreciation and interest on the cost of the necessary fixtures and reservoir; this is less than one-sixth the price charged by the city of Boston for metered water, and considerably less than the price charged for

irrigation in any place where the present generation has constructed the works and seeks to make them pay a remunerative income.

That should a brook or spring not be available, there are but a few places where an adequate supply may not be obtained by sinking wells.

That the cost and arrangement of the work will vary so much with the different locations and circumstances that no schedule of cost can be given, but the cases will be rare where \$750 to \$1,000, discreetly expended, will not furnish ample water for the irrigation of fifteen acres of tilage land.

That the preservation of a single crop, in a year of unusual drought would reimburse the whole expense.

That the positive assurance of immunity from the effects of drought should induce all cultivators to secure at once the means of irrigating their lands if possible.

That besides the security afforded in the case of an excessive drouth, it will be found that water can be used very profitably in almost any season with a great variety of crops. And lastly—

The great wonder is that our farmers and horticulturists have disregarded the matter for so long a time.

FEEDING HAY.

Concerning the indefinite quantity of the hay ration in the most reputed feeding experiments referred to in a recent issue of the *Gazette*, it may be observed that feeding hay is a matter that requires considerable judgment. Animals, like men, when the opportunity for exercising preferences is presented, are apt to consider that the best only is good enough for them; and if more hay is given than they require will pick out the tenderest and sweetest portions and leave the remainder, which not only wastes valuable feed, but encourages the habit of daintiness in the animals which is conducive to anything but thrift. Animals that pick over their food, smelling and poking every blade and stem in apparent hesitation as to whether to eat or not, do not compare in thriftiness with the good, square eaters, whose appetites give them a good relish for a reasonable quantity of any proper food. The general practice is to "feed enough," which is correct enough when just enough is given, and very incorrect when great quantities are given to be trampled under foot or otherwise wasted. But, with hay in bulk, it is not easy to gauge the quantity given, and even if this were possible, it would vary materially with the quality of the product, although where good grain rations are given, variations in the quality of hay are not so important. We remember once weighing some hay that had been passed through a cutting machine, and that a great big pile of it uncut, measured only a new bushel basketful after the machine had done with it, weighing seven and a half lbs. to the basket, or just half the weight of coarse wheat bran weighed at the same time. It is not possible in the practical operation of the farm, to be strictly accurate in such matters, but whatever departures there may be should be, so far as possible, controlled by calculation, and not left altogether to accident. The farmer can not have a chemical analysis made of his hay

to ascertain its exact nutritive value, and he cannot weigh out to each bullock so many pounds and ounces; but he can, considering the quantity of grain he is feeding and the average quality of the hay, make up his mind about how many pounds he should feed. If he does this, and finds part of it wasted, he can decrease the quantity, and if the quantity should be insufficient, his own practical observation will soon disclose that fact to him. Having made up his mind about how many pounds to feed, he will have to guess and weigh a few times until he can approximate somewhat the desired quantity, and will have a basis or starting point from which to increase or decrease the ration. Besides he is pursuing a method, and there is nothing that contributes so much toward sharpening one's powers of observation and ripening his experience as the habit of doing everything according to some fixed method or plan.—*Breeder's Gazette.*

SELF-BINDING REAPERS.

There are some modern improvements which are not all gain, as, for instance, the modern self-binding reaper. An Ohio farmer thus states the case: Fifty years ago when he was a young farmer it cost him 50 cents an acre to put grain in the shock, the reaping being done with the sickle. Thirty years ago it cost 76 cents an acre to cut and shock wheat, the cutting being done with the cradle. Now it costs \$1.40 per acre to put up grain in shock with the twine binder, and 57 cents with the self-raker and hand binding. So that each improvement has actually increased the cost of harvesting, the only gain being in time. The inventor and manufacturer of a popular reaping machine died worth \$30,000,000. This enormous wealth turns out to have been gathered from an equivalent loss to the farmers who have used his machines. And some farmers have actually found the purchase of a costly reaper for which they were induced to go into debt, the first step on the road to ruin.

Nevertheless, neither this Ohio farmer nor any other man would be willing to go back again to the back-wearing sickle and cradle. There are some things in this life that are worth more than money, and the farmer who would sweat and worry over his one acre a day with the sickle when he can go comfortably over twelve acres with his self-binder would be considered by his neighbors as having lived past his usefulness. Moreover, cheapness is not always profitable. A farmer can make much more money by a profit of \$10 an acre on ten acres than \$11.10 per acre on one; the difference, \$88.90, is the exact benefit to the farmer of the self-binder. And this larger profit is made possible because with the better system of agriculture coincident with our present valuable labor-saving and time-saving machinery we have more land in cultivation and larger crops for each acre cultivated. Therefore no one who has outgrown his cradle should ever despise the self-binder or any other machine which does the work of ten pairs of hands.

It is claimed that sway-backed horses keep in better condition on the same feed than the high-backed.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The Lancaster County Agricultural Society met steadily on Monday afternoon, October 6th, in their room.

The following members were present: Calvin Cooper, Bird-in-Hand; Casper Hiller, Conestoga; Johnson Miller, Warwick; Martin D. Kendig, Manor; C. L. Hunscker, Maubain; Joseph F. Wither, Paradise; John H. Landis, Manor; J. M. Johnston, J. B. Hipple and F. R. Dillenderfer, city; W. H. Brosius, Drumore; S. P. Ely, city; E. S. Hoover, Maubain.

In the absence of the President, Calvin Cooper was elected to serve as temporary chairman.

Reports.

The committee which had charge of the Farmers' Institute last June made the following report:

Mr. President and Members of the Lancaster County Agricultural and Horticultural Society:

Your committee have been somewhat tardy in making this report, from a misunderstanding as to whose duty it might be to write it out. One of the most learned members, who is undoubtedly the best parliamentarian in the society, says "that duty devolves on the chairman of the committee."

The idea of holding a Farmers' Institute seems to have originated in the State Board of Agriculture, and an attempt made in one or two of the counties to hold such an institute. As to their success or failure your committee have not learned. Our member of the Board introduced the subject here, and was met with sufficient encouragement to make the experiment in this county, and authorized your committee to make the arrangements and conduct the same.

A general invitation was given by both large posters and private letters of invitation, in which every one interested was freely invited to attend the sessions of the Institute and take part in the exercises. Excursion rates were also secured from the railroad companies at reduced rates. Each of the daily papers generously contributed frequent local notices, calling the public attention to the enterprise.

Lectures and addresses were delivered by men of the best talent in the Commonwealth, and also by the United States Commissioner of Agriculture, Dr. George B. Loring. Each in his specialty exhaustively discussed the subject assigned him in the most entertaining and instructive manner.

The attendance was not what had been hoped for by your committee. After the general notice that had been given; with such prominent men as Dr. Loring, Governor Pattison, Dr. Atherton, Col. Piollet, Dr. Harvey, Mr. Hazzard, Secretary Edge, Dr. Calder, Prof. Jordan and Heiges, and other essays with contributions that made a programme of exercises that would profitably entertain any one intrusted in agriculture or horticulture. But when we take into consideration the indifference of our people in scientific and experimental agriculture, we have reason to congratulate ourselves that some of the best citizens attended the several sessions, and congratulated us upon the excellency of the lectures and address. If we had had some musical entertainment, horse race or side show, it would have doubtless filled the Court House to suffocation.

Of the results of the experiment, your committee have reason to believe in future it will be better patronized. The subjects discussed were such as to attract the attention of all practical men, although there is so much diversity of opinion as to what produces the best results in the various crops of the husbandman. The science of chemistry tells us there are certain ingredients requisite to produce certain crops, and without them available in the soil, failure is the inevitable result. Hence we conclude the thought and query will create a search for such knowledge as was imparted by the professional men who addressed the Institute.

As to finances the Institute was not a success. It had been suggested that the admission should be

free, and the accessions in membership to the society might be sufficient to pay all expenses. Such, however, did not occur, but the generous donation of Dr. Wickersham, one of the committee, has relieved the actual outlay by the society from \$122.98 to \$83.48, all of which has been paid from the treasury of the society.

On motion, the report was unanimously adopted, and a vote of thanks was tendered the committee.

Johnson Miller also read a report made by him as one of the committee sent from this society to visit the State Fair at Philadelphia.

Crop Reports.

Casper Hiller said that he had nothing to complain of in Conestoga. There were good wheat, hay and corn crops. The latter might be better, but it will average about 80. The fruit crop was plentiful. Apples are nearly all off the trees. Those on low lands did best. Winter apples will be a partial failure. Some seeding has been done. Many have not been able to sow—cannot plow their ground.

Johnson Miller said they had considerable rain. The ground is now in excellent condition. The corn crop has come out well. There has been a good supply of apples.

M. D. Kendig said seeding is ten or twelve days later than usual; much remains to be sown. Farmers are busy in buying their stock cattle. The price runs from 4½ to 5 cents per pound. The quality is poor.

W. H. Brosius, of Drumore, said their crops were good; seeding is nearly completed; apples have fallen very badly.

Joseph F. Wither was surprised to see that corn on corn stubble land was better than that planted on soil; usually this is not the case.

C. L. Hunscker, of Maubain, said all the crops taken together are good; wheat, oats and potatoes are all good; sowing is going on rapidly; the tobacco crop is excellent; on the whole, the present is the best crop year he had for twenty years.

Mr. John H. Landis read the following essay on

Protection to Farmers.

The chronic grumbler complains that we have so great an over-production that our crops have yielded too heavily, and that as a consequence of this over-production the prices are so extremely low that agricultural labor is but slimly rewarded.

Bounteously has the Almighty blessed the efforts of the American farmer in this year of grace 1884. Five hundred million bushels of wheat, and nearly two billion bushels of corn, reward the industry of the American agriculturist. God's sunlight, dew and showers joined hands with the sun of toil in the production of this unparalleled yield. Good crops will insure cheap bread for man and cheap food for beast. Wheatland corn may bring a low figure per bushel, but with a big crop, so much more can be turned into beeves and porkers. There is always a demand for good beef and pork, and they always command a fair price. So, while the price for the grain may be low, to convert it into meat will bring ample compensation to the farmer; besides, his own bread will be cheaper, and his cost of living will be comparatively less.

The farmer must plow and sow and reap all the same for a poor crop as for a full crop. The fuller the yield the better he is paid for his labor. He who realizes forty bushels of wheat from the acre can afford to sell it for much less than he whose yield is only thirty bushels per acre. His labor and expense in preparing the ground, sowing the seed, reaping and threshing, is very near, if not altogether, the same, yet if his yield is forty bushels per acre, he sells it for eight cents, he realizes thirty-two dollars per acre, while if his yield is thirty bushels per acre and gets one dollar a bushel he realizes only thirty dollars from an acre. So we have no occasion to complain, and we should look upon our heavy grain crop as a blessing.

The average farmer appears to be puzzled to know what to do with his wheat. He feels as though he ought to have a higher price. At the same time there is a lingering suspicion in his mind that per-

haps he had better sell after all, as there is nothing within sight that satisfies him that there is much likelihood of an early advance. Hopefully he casts his eyes toward to the east and looks for "a foreign demand." There is nothing, however, beyond Atlantic's waves that gives him substantial encouragement. Now, what does this show? It points out the fact that "a foreign demand" is an uncertainty. It shows the uncertainty of a foreign market and it should lead our agriculturists to the conclusion that the only safe market for the American farmer is the American market and that the only reliable buyer from the American producer is the American consumer.

There is a duty of 20 cents on every bushel of wheat imported into this country, a duty 10 cents on every bushel of corn, a duty of 10 cents on every bushel of oats and so on, and it is to this protective policy of our government that the farmer is largely indebted for his prosperity of recent years and they are those protective features of our tariff laws that he cannot afford to have wiped out.

The acreage devoted to agriculture in Southern Russia, in India and in other foreign lands is yearly increasing with astounding rapidity. India alone has 55,000,000 acres of fertile soil thus far untouched with the plow, though the British Government contemplates building railroads, and there are strong reasons for believing that at no very distant day this entire region will be turned into one vast wheat field. In India laborer feeds on rice and on millet seed, which costs him but a few cents a day, while his wages range from eight to ten cents a day. In this way India can raise her wheat at a cost of not more than thirty-five cents a bushel.

The American farmer cannot compete with thirty-five cent wheat in the European markets. His only hope is in a home market. So it is to be hoped that he will know his interests sufficiently well not to allow the protective policy of the government to be changed, but that under it a home market for the farmer may be continued, and in that way enable him to dispose of his surplus crop at home and secure him a fair price for the products of his soil without depending upon the uncertainties of a foreign demand to have the fruits of his labors duly rewarded.

This essay led to a prolonged discussion, which was participated in by nearly all the members present. Mr. Johnston was the principal member who took no stock in the protection theory, although some of Mr. Landis' views were pretty severely assailed from several quarters. At times the discussion was very lively and a good many very peculiar views were advocated. It was the liveliest affair that has taken place in the society in years.

A motion was made and carried that Mr. Geo. W. Hessel, of Quarryville, this county, should be invited to give the society his observations in farming and farm life in Europe.

Calvin Cooper presented some handsome apples for a name.

Daniel Smych had a late scedling peach, of good size and quality.

F. R. Dillenderfer had some very fine specimens of Hubbardston's Nonsuch and Romaine apples from Cass county, Missouri, and some handsome Tompkins King from Lancaster county. He also exhibited specimens of Sumatran tobacco—a foreign article and a home-raised article grown from pure Sumatran seed.

On motion the society adjourned.

FULTON FARMERS' CLUB.

The Fulton Farmers' Club held its September meeting at the residence of E. H. Haines, in Fulton township. The members' families were all represented, except Lindley King. Visitors present by invitation—Timothy Haines, Franklin Tollinger, Wm. Ingram and Layman C. Blackburn.

There was a great variety of fruit on exhibition. S. L. Gregg exhibited Howell pears and three varieties of apples. C. C. Caultman, Gravenstein and Madiens' Blush apples and a variety of apples for a

name. William King, grapes and two varieties of apples for a name. B. H. Haines, six varieties of apples, two of pears and six of grapes. Also, a bunch of hops, some of which measured 3½; inches in length. Montillon Brown, six varieties of grapes and two of pears. Layman C. Blackburn, three varieties of pears. Marshall Nesbit, potatoes for name. Joseph K. Blackburn, Helms' prolific wheat. Timothy Haines, two varieties grapes and Seckle pears.

Samuel L. Gregg asked if apple trees that had been re-topped by grafting bear as well as others.

The experience and observation of all present went to show that they would do well, although some thought that they did not live long.

Montillon Brown: Fallwater apple trees are short lived. Would they do better if grafted in another variety high up?

E. H. Haines thought that it would be a good idea. The toppers work on Fallwater apple trees more than other trees. They might be saved by grafting some distance from the ground. Timothy Haines has one that has been grafted about six feet up. It is healthy yet, but may not remain so.

Several questions were handed to the Secretary, as follows:

1. After the fruit is formed on a grape vine, will it do any harm to keep a part of the new growth cut away?

Wm. Ingram had tried it. It did not do any better, either in growth or ripening.

E. H. Haines thought it might be better to keep some of the foliage cut away so as not to shade the fruit.

Timothy Haines thought that grapes ripened better in the shade. When the foliage is eaten away by worms, they will not ripen at all.

2. Will a walnut tree standing in a field do harm to the crops.

E. H. Haines used to think it did not, but thinks differently now.

Wm. King: It depends on what crop it is. If Timothy, it will grow under it; clover and other crops will not.

Layman C. Blackburn: If Timothy will grow it is about the only crop that will.

Wm. Ingram: Timothy and wheat will grow, under a walnut, but corn will do no good.

Day Wood did not think there was much difference between a walnut and chestnut. Wheat will grow under them but will not fill.

3. To J. R. Blackburn: How did the oats on the ground plowed last fall compare with that on the ground plowed this spring?

J. R. Blackburn: There was very little difference.

4. Will apples that are ripe now make good vinegar?

S. L. Gregg: They will not make as good vinegar as late apples. Early cider is not near so rich as late cider.

J. R. Blackburn: They will make good, vinegar, but probably not the best.

E. H. Haines did not think they would.

Layman C. Blackburn: What does it cost to make 100 pounds of beef when corn is 60 cents per bushel, and what sized cattle are most profitable to feed? There was no one present ready to answer this question fully.

Day Wood calculated on feeling about fifty bushels of corn to each of his steers, and expected them to gain four hundred pounds per head.

Viewing the Host's Farm.

The criticisms on the farm were mostly of a favorable character. The buildings in good order, fine hogs, etc., but the hedge around the orchard was thought by some to be rather too high for a fence, and not high for a wind break.

The host read an article on the "Unestimated Income of the Farmer."

Belle Mooney read an essay, entitled "Our Progress," showing the progress in the acts and all the various ways and doings of men since the discovery of the continent.

E. H. Haines read a letter that he had received from Joseph A. Roman, a former member of the

Club, who went to Missouri over a year ago. The writer spoke feelingly of changes in the Club occasioned by the death of two of its members during the last year, and was afraid that if he ever was permitted to meet with it again, he would find that it was no longer "Our Club." He was satisfied with his location, and thought that raising short-horn would pay better than making gilt-edged butter for twenty cents per pound. But he would leave the bright side for others to show. He would show the dark side. He was living in a log house, with some of the chinking out, so that the moonlight could stream in. His wagon shed was a post oak grove. Weeds are a great nuisance, especially the sand burr cockle, burr and horse nettle. The latter is distributed all over the Mississippi Valley. Ticks and fleas are also very abundant. They are of the kind that wade right in, and he would advise any one coming out there to have his shirt made open in front; it's handier.

Carrie Blackburn recited "The Way of the World."

A. E. Wood had seen a recipe of a Michigan woman for canning corn, and was thinking of giving it a trial, when she noticed an article in the paper giving the results of a trial made by another woman. She had the corn packed, the tops of the cans screwed on and placed in a boiler of cold water and a fire started under it. When she came to look at it she found corn and broken cans all mixed together in the boiler. She would not give her thoughts about that Michigan woman; they would not look well on paper.

Adjourned to meet at G. A. King's at the usual time in October.

LINNÆAN SOCIETY.

The Linnæan Society, after an adjournment of three months, met on Saturday afternoon, September 27th, at 2 o'clock in the museum ante-room. The president, Hon. J. P. Wickersham, was in the chair, and ten members in attendance and several visitors present. The minutes of the previous meeting were read and approved and dues collected.

Donations to the Museum.

A large specimen of a "tarantula"—a species of *Mygale*, apparently *Mygale heathi*, from Mr. Charles Peters, dealer in general merchandise, No. 502 Middle street. This specimen was brought from South or Central America in a bunch of Bananas, reaching Lancaster about the middle of last June, and it came into Dr. Rathvon's possession a few days after our last meeting. Mr. Peters placed live flies in the jar with the animal, which it did not devour. On the day Dr. Rathvon received it he introduced a living male specimen of *Corydalis cornutus*, but the spider did not seem to recognize its presence. On the next morning thereafter, the insect was dead, but there was nothing to indicate whether it died by violence or a natural death, as no part of its body had been consumed, but remained entire. He then conceived the idea of testing its power of endurance without food, and it survived until the 25th of July, showing remarkable tenacity. It was kept in a fruit jar, with the top screwed on, and therefore must have had a limited supply, even of atmospheric air.

The fact of insects and other animals being brought from Southern regions, packed in bananas, is very interesting, and of frequent occurrence. Last year Mr. S. M. Sener found two very large flies in a bunch of this fruit that had just been opened on the corner of North Queen and Orange streets. They appeared to belong to the genus *Styrpium*, or an allied genus. Two years ago an agent of Philadelphia, informed me that a beautiful blue and green lizard, about six inches long, sprang from a box containing a bunch of bananas, that had been sent up by a friend in Central America, but it made its escape before it could be secured. From his description of it, it evidently belonged to the *LACERTIDÆ* or true lizard family, and probably to the genus *LACERTA*.

In the Daily Examiner of July 25, 1884, there appeared a paragraph to the effect that a small bird

had dropped from a bunch of bananas that had just been hung up by a fruiterer at Concord, N. H. The bird seemed to be nearly starved, but revived, fed greedily on flies, and was very lively, but died the next day, it is supposed from a surfeit of North American flies. No other description was given than that it was small in size, "spotted black and white, and somewhat resembled a woodpecker." It may have been a "Titmouse," a "Sapsucker," or a "Creeper," or possibly a small species of *Picus*.

But the most remarkable "find" is that recorded in "Ward's Natural Science Bulletin," for July, 1884, in which it is stated that a gentleman of Rochester, N. Y., purchased a bunch of bananas, and on removing the fruit from the stem he discovered a small female "opossum" (*Didelphis dorsivaga*), which had come all the way from Surinam, S. A., hidden within a bunch of bananas. But more remarkable still, she was accompanied by six young ones, all clinging by their naked, prehensile tails, to the tail of their mother. Five of these died in attempting to wean them, and the sixth was eaten by the mother. From this it would appear that the banana trade might be made a prolific source for the collection of small foreign animals, for, doubtless, there have been many similar cases that have never been recorded, or the records of which have not been brought to our notice.

Mr. Charles A. Heinitz donated a small specimen of the "pipe fish," (*Syngnathus peckianus*), taken from the throat of a blue fish, captured near Barre, Vt., in July last. This is one of the most interesting little subjects of the aqueous realm. It belongs to the limited order LOPHOBRANCHII—including those fishes which have the gills in small rounded tufts along the bronchial arch, instead of resembling a fine-toothed comb, as in the case of fishes generally. The order contains but one family (*Syngnathidæ*), which also includes the sea horse (*Hippocampus adonias*) and its cognegens. What gives it additional interest is the fact that it may be said to represent in the class *Pisces*, the marsupial animals in the class *Mammalia*. During incubation the eggs are carried in an external abdominal pouch, and the young issue from it in due time, perfectly formed; but the most anomalous circumstance of all is, that the males possess this pouch, and carry and hatch the eggs, and not the females.

Mr. Heinitz also donates a small specimen of the "Bait Shrimp" (*Crasogeomys septempunctata*) or "Seven Spined Shrimp." Two infant specimens of the "King Crab," (*Limulus polyphemus*) or "Horseshoe Crab," were donated by Mr. Wm. Benkert, who received them by mail from a friend at Sag Harbor, N. Y. Doubtless all the crustaceans are very prolific, but this species in particular is known to be so. In an adult female sent to the society nearly twenty years ago, were found and secured at least half a pint of eggs. The whole cavity of the anterior portion of the animal (*Cranium*) was filled with eggs, indeed, the whole body appeared to be nothing but shell and eggs, and many of them were not secured. No doubt their normal function is to produce sustenance for other marine animals. They have been taken from the stomachs of fishes, and perhaps, when quite young, they may furnish a luxurious repast, but there seems to be a very small quantity of an edible quality in the adults. The adults attain to two feet in length, and they use the same organs for both walking and eating. They constitute the family LIMULIDÆ, in the order *Entomostraca* of the class *Crustacea*. They are organically lowest in their class.

On the 17th of July last, near the camp of the "Tuquon Club," at York Furnace Spring, Miss Annie Friday, of Lancaster, captured a very beautiful specimen of *Anabystoma coccinea*, perhaps the first specimen taken in Lancaster county. (Nearly forty years ago Dr. Rathvon found it very abundant, in a much decayed log hut, at the head of Hunter's Lake, in Lycoming county, but this was the first living specimen he ever saw in the county of Lancaster, although it may abound here.) This little reptile is not quite three inches in length, has two rows of orange colored spots margined with black; one row

and perhaps less will do. You will be surprised how little will answer if you attend to it yourself; but if you leave it to your house help she would be likely to think a heaping teaspoonful quite a moderate quantity, and your cakes would then be unfit to enter any respectable stomach. We would like to know if a great deal of dyspepsia is not produced by the almost constant use of baking powder and soda. And may they not also produce blood poisoning, and do not the teeth decay sooner? We want light on the subject and would be glad to hear from others.—*Germanstown Telegraph.*

Food for Dyspeptics.

A member of my family was incapable for months of retaining any food except beef, slightly boiled, and only a small portion of this could be eaten, but at short intervals. After a while the crust of stale bread could be digested. One person told us that he could eat nothing but parched corn pounded; another, only whole wheat boiled the entire day. Neither agreed with our patient, but when early apples ripened they were freely eaten and digested. All other fruits followed gradually, pears last, and now the dyspeptic apparently has as sound a stomach as ever. The patient should remain out doors as much as possible.—*Country Gentleman.*

To Make a Fish Napkin.

Boiled fish, like corn, is best brought to table in a cloth to keep it warm. For fish, a piece of linen about forty inches long by twenty-three wide, is required. It may be of tea toweling, fine crash or butcher's linen. Out of each corner cut a piece ten inches long by seven wide, which will leave the proper sized flaps to turn over at the four sides. On either flap encircle a bunch of coral, a fish-net, a spray of sea-weed, or some such design in washing silk, which is sold at the Art Needlework School here. Spread the napkin on the dish, garnish it with parsley, lemon or egg, turn over the corners, and you will have a prettier dish than painted china. French table napkins are always long and narrow, like a towel, so that they cover the sides of the dress as well as the lap. This is a sensible improvement on the square napkin, which has as much too much one way and too little another as Dick's hat-band.—*Philadelphia Ledger.*

How to Keep Cider Sweet.

Pure, sweet cider that is arrested in the process of fermentation before it becomes acetic acid or even alcohol and with the carbonic acid gas worked out, is one of the most delightful beverages. When the saccharine matters by fermentation are being converted into alcohol, if a bent tube be inserted airtight into the bung with the other end into a pail of water, to allow the carbonic acid gas evolved to pass off without admitting any air into the barrel, a beverage will be obtained that is a fit nectar for the gods.

A handy way is to fill your cask nearly up to the wooden faucet when the cask is rolled so the bung is down. Get a common rubber tube and slide it over the end of the plug in the faucet, with the other end in the pail. Then turn the plug so the cider can have communication with the pail. After the water ceases to bubble, bottle and store away.—*Farm, Field and Fireside.*

Wash Out The Buttermilk.

From some elaborate experiments made in Germany, it appears that where extra fine butter is made from cream separated by the centrifugal process the choice quality is preserved better than the same quality is preserved when the butter is made from cream which "rises" either in a deep or shallow vessel. From this it would seem that the practice of separating cream as quickly as possible is good. And it seems, too, that danger to the butter comes rather from the milk left in the cream than from the cream itself. All this emphasizes the necessity of thoroughly washing out the buttermilk as soon as churned.—*Philadelphia Press.*

Teaching Girls How to Cook.

There comes a time in every little girl's life when she is seized with a longing to cook; by all means indulge her. Do not wait until she is a young lady and then send her to a cooking school to learn how to make a pudding or cake—what she might have learned in the kitchen at home; and had been happy in learning. A neighbor of mine who put this theory in practice presented me with a plate of cookies made by her daughter of five; they would have been creditable to a much older cook. The child faithfully and diligently followed her mother's instructions. If some older member of the family superintends, but does not lend a helping hand, a good deal of valuable knowledge will be acquired in this way. Let them begin with something very simple; try, for instance, this rule for crackers: To three pints of flour put one teaspoonful of soda, dissolve in sour milk; melt a tablespoonful of butter, or of butter and lard mixed; make the dough very stiff; roll it very thin; bake slowly.—*New York Post.*

Repairing Children's Stockings.

It is too early to think of putting cotton stockings on the children, and yet it is possible that in many cases this must be done, or new woolen ones must be bought; this you may not care to do, so I will tell you of a way by which the old ones may be repaired. The knees are worn out, of course, so cut the worn part off, and piece the stocking up with parts of other worn stockings, or with a strip of stockinette. If you make a fine seam, and sew it carefully so that it is smooth, it will not "rub" or hurt the tender flesh of the smallest child.—*New York Post.*

Rag Carpets.

Bright, durable rag carpet is used on many kitchens. Where people do not employ several servants it is a great saving of labor. If it is thoroughly swept every day it will keep fresh and clean a long time. The majority of housekeepers do not pay as much attention to their kitchens as they should. This should be kept scrupulously clean, and should not contain but the necessary articles of furniture. Some people carry the craze for decoration into their kitchens, and ornament the walls with all kinds of gin cracks. This may be well enough on a flat, where the housekeeper does most of her own work, and when she is a dainty individual; but it does not do in an ordinary kitchen. Painted walls, a painted or rag-carpeted floor, and well-starched white Swiss curtains are what are needed in kitchens.—*American Queen.*

Open Grates.

An open grate adds nothing to the attractiveness of the sitting-room in summer, and it is a positive annoyance if it is closed by the unsightly black cover; it may have instead of this a pretty Japanese parasol for a cover, on a small screen made of a large round fan, with the handle cut off, with the exception of an inch or two, which should be glued into an opening in a small block of wood. This block may be bronzed or painted. If you care to make a very handsome screen the fan may be used for a foundation simply, and it may have a silk and velvet cover upon which a great deal of effective ornamentation may be lavished. If you choose, some other shape rather than round may be used.

HOUSEHOLD RECIPES.

CIDER JELLY.—Select good cider apples, run them through a cider-press, and put the cider on immediately, and boil rapidly until it forms a firm, transparent jelly. It should not stop boiling a moment. Test by dropping on ice or into very cold water.

SWEET APPLE PICKLES.—Sweet apples make delicious pickles. Peel and quarter them, boil them until tender in vinegar and water; to one quart of vinegar add two pounds of sugar; heat the vinegar and dissolve the sugar in it; add cloves and cinnamon and pour over the apples white hot.

MARMALADE.—Select very ripe fruits—grapes, crab-apples or quinces. Cut the fruit having a core, in halves, and stew until tender in water enough to cover the bottom of the kettle; strain through a fine colander or sieve, to remove the skin and seeds. For each pint of pulp allow a pound of sugar, and boil half an hour, stirring constantly. Spice may be added if desired. The marmalade should be hard and firm when cold.

APPLE TAPIOCA.—Pare six or eight apples; remove the cores, leaving the apples either in wholes or in halves. Add a little hot water, cover closely, and cook until they will cut with a spoon. Put them in a dish, and pour over them a cup of tapioca cooked just as for lemon pudding, but with the juice of only two lemons and not any of the yellow rind. Set in the oven for ten or fifteen minutes; serve cold or warm with rich cream and sugar.

WHITE CAKE.—One cup butter, two of sugar, one of sweet milk, three of flour, whites of five eggs, two teaspoonfuls of baking powder.

KING CAKE.—Three-quarters of a pound of butter, one and a quarter pounds of sugar, one nutmeg, six eggs and cup of milk; flour to make an ordinary batter.

POVERTY CAKE.—One pint of milk, one teaspoonful of salaratus, two eggs. Make them just stiff enough with Indian meal to work into balls, and boil them in hot fat. To be split open and eaten with hot butter.

CUP FRUIT CAKE.—One cup of butter, two cups raisins seeded and chopped fine, four cups flour, two cups brown sugar, one cup sour cream, three eggs well beaten, one teaspoonful soda, one of cloves, four of cinnamon. Bake slowly and serve hot or cold with sauce.

CHICKEN SALAD.—Boil a chicken; while warm nuice it, taking out the bones. Put in a stew pan with boiling water. Then stir together until smooth, one quarter of a pound of butter, one teaspoonful of flour and yolk of one raw egg—all of which add to the chicken one-half at a time, stirring all well together. Season with salt and pepper. Let it simmer ten minutes; then add half a gill of Madeira wine, and send it to the table white hot.

COCONUT CAKE.—Five eggs beaten separately, three cups sugar, four and a half cups flour, one cup butter, one cup of sweet cream, one teaspoon even full of soda, two teaspoons even full of cream tartar, one half of a grated coconut. Ice the top and sprinkle the remainder of the coconut over it. This will make more than one cake.

CHARLOTTE RUSSE.—Take half a pint of milk and yolk of four eggs for a custard; boil one ounce isinglass in a pint of water until it is reduced one-half; strain this into the custard, flavor and sweeten; for this, whip one quart of cream, letting it drain on a sieve and re-whipping what drains through; mix the custard well with the whipped cream and pour into bowls or glass dishes. You can, if you choose, line the dishes with lady's fingers or spiced sponge cake, before pouring in the russe, and then it will turn out beautifully when hard; use an egg beater for whipping the cream.

FRESH-CATCHED OYSTERS.—1 quart oysters, 1 egg, 2 tablespoonfuls of butter, 4 tablespoonfuls flour. Brown 1 tablespoonful of butter in same pan, turn in the oysters, well drained, and when they commence cooking add salt, pepper, and 1 tablespoonful of butter rubbed with flour, then the egg, well beaten in cream or rich milk. Have buttered toast ready, and turn the oysters over it, serving immediately.

LENEH BISCUIT.—Make a nice baking powder biscuit and roll out about $\frac{1}{4}$ inch thick, then sprinkle over it 1 teaspoonful of finely crushed coffee sugar and the least dust of cinnamon. Roll up tightly, and cut the biscuit from the end about 1 inch thick, and place carefully on buttered tins and bake quickly.

STEWED BEEF.—Cut cold beef in small pieces; take cold gravy without the fat, put into a spider to heat, when it boils up season with salt and pepper

and put in the meat; cover it and let it stand on the fire long enough to heat thoroughly, then stir in a small piece of butter; toast bread and lay in the dish, and put the meat over it.

STEWED POTATOES.—Slice cold potatoes, put into a buttered saucepan, season and dredge well with flour, add milk, almost to cover them, add a bit of butter, cover and cook slowly.

GREEN CORN OYSTERS.—1 pint of grated sweet corn, 1 egg, $\frac{1}{2}$ cupful sweet milk, $\frac{1}{2}$ cupful sifted flour. Season with salt and pepper. Drop from the side of a spoon in the form of an oyster and fry on a spliter in half butter and half lard.

CUKKANT WINE SAUCE.—Four table-spoonfuls sugar, 2 teaspoonfuls corn starch, 2 teaspoonfuls butter, $\frac{1}{2}$ cupful currant wine, $\frac{1}{2}$ pint boiling water, $\frac{1}{2}$ a nutmeg.

LEMON SAUCE.—One lemon cut in thin slices, 1 coffee cupful of sugar, 1 pint boiling water, 1 table-spoonful corn starch or flour, 2 table-spoonfuls butter. Boil lemon in the water a few minutes, add the sugar, corn starch and flour.

CREAM SAUCE.—Two-thirds pint of sweet cream, 2 eggs (whites), 1 table-spoonful vanilla, 2 table-spoonfuls sugar. Scald the cream in a basin set in boiling water, sweeten and pour it slowly over the beaten whites, then add flavoring.

PEACH SAUCE.—To the juice of caimined peaches add a little water, sugar, and 1 dozen raisins; boil a few minutes, then strain and flavor with almonds; or, still better, boil 2 peach pits with it.

FRUIT CREAM.—One pint of cream or rich milk, 1 ounce of gelatine dissolved in water, $\frac{1}{2}$ cupful sugar. Scald cream and sugar, strain into the gelatine, beat thoroughly, and when nearly cold place fruit or sweetmeats in a glass dish and pour the cream over. Very nice with raspberries or peaches.

VEAL LOAF.—6 pounds of raw veal, $\frac{1}{2}$ pound salt pork, 6 eggs beaten, 3 table-spoonfuls butter, 18 crackers, salt and pepper. Chop the veal and pork fine, mix with it the egg, $\frac{1}{2}$ the rolled cracker and seasoning; make into a loaf, cover with the remainder of the crumbs, and bake $1\frac{1}{2}$ hour, basting frequently.

CREAM CAKES.— $1\frac{1}{2}$ cupful of flour, $\frac{1}{2}$ cupful of butter, $\frac{1}{2}$ pint boiling water, 5 eggs, 2 teaspoonfuls of baking powder. Roll flour, butter and water to gether, and when cool, beat in the eggs by hand, one at a time. Bake in gem-tins, or patty pans. When cold make a small opening and fill with cream of 1 pint of milk, 2 eggs, 1 cupful of sugar, $\frac{1}{2}$ cupful of flour, 1 pinch of salt, lemon or vanilla flavoring. Roll as for custard. When cool fill the cakes.

LONDON CONFECTION CAKE.—Two cupfuls of sugar, 1 cupful of milk, $\frac{1}{2}$ cupful of butter, 3 cupfuls of flour, 3 eggs, 2 teaspoonfuls of baking powder, 1 teaspoonful of flavoring. Bake half in 2 layers, and add to the other half 1 cupful of chopped raisins, 1 teaspoonful of cinnamon, $\frac{1}{2}$ teaspoonful of cloves, $\frac{1}{4}$ teaspoonful of allspice. Roll fruit in flour. Bake in 2 tins, and put together alternately with jelly.

SPANISH CREAM.—One pint of new milk, $\frac{1}{2}$ box of gelatine, 5 eggs, beaten separately, 1 cupful of sugar, 1 pint of cream, 1 teaspoonful of vanilla. Dissolve the gelatine in the milk, add the yolks and sugar, and stir over boiling water until creamy, then remove from the fire; beat in the whites. When cold add the whipped cream, which should be very cold. Flavor and pour into a mould.

LIVE STOCK.

Feed Young Pigs Often.

To feed young pigs six times a day is better than to do so less often. By "a little" is meant enough to fill the stomach moderately full, but in no case to the extent of stuffing or gorging. This latter manner of feeding will destroy the appetite or produce an inflated or pobby condition, and stunt the pig. "Blind staggers" are caused by disordered stomachs.

Rubbing turpentine on the top of the head causes an active evaporation, and no doubt has a stimulating effect on the whole system; but the best remedy is more care in feeding, and feeding in such a way that the stomach is kept in a vigorous and healthful state, and then there will be no rush of blood to the head, but it will be equally distributed all over the body, and the stomach will retain its periton. Young pigs should have an opportunity to eat grass or some kind of green food, as it helps them wonderfully. They like to root in the ground, and this, too, is a natural condition. They will eat more and thrive better when they can have these benefits.

Selecting the Breeding Ewes.

It is useless to keep old breeding ewes, not so much on account of their greater liability to disease, as for the reason that by frequent changes the flock is more quickly improved. The breeder who keeps old ewes is not one that improves, especially if the flock is a common one. In selecting young ewes, the largest and best formed must be retained. Examination of each one separately is the proper mode, the length and fineness of the wool being also considered. A good ewe has something to do besides merely becoming the mother of a lamb. She must supply it with food, and the capacity of her udder is not alone sufficient. She must be sound, healthy, a good feeder, and possess a depth of carcass and length of body generally. The future growth and early maturity of the lamb depends upon the care of it in the beginning, and any ewe that has been found deficient in those points necessary for a dam should be cast aside for a better animal. The march of improvement has been mostly in the use of the blooded sire, but the characteristics of the dam largely influence her offspring. It is true a blooded ram confers rapid improvement to a flock, but his influence will be more powerful and lasting if he is allowed in a flock where the ewes have been carefully selected. Some ewes are entirely unfitted for crossing with rams of the Cotswold breed, for the lambs, being heavy feeders and quick growers, cannot procure a sufficient supply of nourishment from their dams, and if the dams are old and inactive, the difficulty is augmented by their inability to help themselves.

Dutch Cattle.

There has been very much discussion, often neither good-tempered nor profitable, on the name of the black and white cattle imported from Holland. The name Holstein is most common in this country, being more generally recognized by agricultural associations. Holstein formerly belonged to Denmark, now to Prussia. It lies north of Holland. Not many of the cattle called by the name are imported from Holstein. It is claimed by some that the good qualities of the Dutch cattle are partly from importations made from Holstein. Friesland is in the north part of Holland. Those who prefer the name Friesian, or West Friesian, claim that the best and purest-bred dairy cows are obtainable from that part of Holland. The belted Dutch cattle so persistently show this peculiarity of coloring as to entitle them to be classed as a distinct breed or sub-breed. They have been longer introduced in this country than have the black and white spotted cattle, but less attention has been given to their breeding, and they have not been so popular. A few years ago a few of this class were brought, from New York we believe, to Ohio. In general characteristics they resemble the Holsteins or Friesians.—*Ex.*

Feeding Stock.

As the feeding season is again approaching, it is well for stock men to carefully study this matter. It is true that the time to make hay is while the sun shines, for the simple reason that the sunshine is necessary for the drying process. It is equally true that the time to fit stock for winter is while we have, without artificial protection, congenial temperature, combined with such varieties of food as the growing season gives us. By supplementing this with grain and meal, we are enabled to put our stock in the best condition for winter. These favorable conditions

will soon be gone, and it is the poorest kind of economy to delay the giving of extra till the stock is put in the stalls for winter. Corn is perhaps the best feed suited to the fattening of stock.

Regularly in the amount of rations fed is of practical importance. All animals should be fed at regular hours, and just what they will eat up clean. If any is left, it should be removed and fed to the other, hungrier animals. As for the time of feeding, three times a day is sufficient for all except horses and swine; the best results are obtained by giving them what they will eat clean four times a day. Cattle should have water twice a day in winter, and in summer as often as they need it, if it can be so arranged.

Unprofitable Cows.

It ought to be quite apparent to an owner of a cow that if it costs \$30 to feed the animal, and the product of the milk is \$25 only, there is an actual loss in money, besides all the use of the land and labor expended in care. But it is a fact that thousands of farmers continue to feed cows, year after year, that do not pay for their food, and are really supported by the better ones in the herd. An instance of how a farmer changed this unprofitable state of things was given at the recent meeting of the Illinois dairymen. It was Mr. H. B. Guler who gave his experience as follows:

He said that he began with 20 cows, which yielded 150 pounds of butter each. That yield of milk was 18 to 40 pounds per cow, the percentage of cream being 7 to 39 per cent., the milk from the cow that gave forty pounds only yielding 2 per cent. The percentage of cream, however, is not always a reliable test of the butter value of cow's milk, as the cream from one cow's milk will make much more butter than that from another.

"In six years," said the speaker, "by ridding myself of the more unproductive cows, and changing from summer to winter dairying, I increased the butter yield from 150 to 250 pounds of butter per cow—an increase of 200 per cent. in the profit. For the year ending June 1, 1880, the gross income from my dairy was \$87.69 per cow, and the cost of keeping was \$47.50 per cow, leaving \$40.12 per cow after deducting the value of feed; or, in other words, \$1 worth of feed produced \$2.33 worth of milk."

But this case was by no means so bad as many that came to light in the annual report of creameries and cheese factories, in which there are statements of whole herds whose product of milk or cream is less than an average of \$30 per head. As \$30 per head is only about eight cents a day for the income of a cow, it is easily seen how unprofitable such an animal is to her owner.—*N. Y. Times.*

POULTRY.

The Dark Brahmans.

The dark Brahmans are not as numerous as are the light, but it is not because they are inferior in any respect. The dark Brahmans are usually a little more compact in shape and are generally winter layers. The cocks of this breed are of magnificent plumage. In fact there is no more beautiful breed known than this. The hens are splendidly pencilled, and when in full feather are as fine in appearance as can be witnessed. The cocks and hens are entirely unlike to a person not accustomed to seeing them. The black breast, black and silver white of the back, and the contrast of the plumage of all parts of the body bring out all the beauty that can be given to a fowl. The young chicks, when first hatched, are perfect little beauties, but after a few weeks they pass into "lezzys" stage so peculiar to young Brahmans, and for a while they may be said to be ugly; but as they mature and thicken up, the long legs seem to disappear, and they become heavy, close shaped and elegant in all parts. For laying purposes the dark Brahmans, if hatched early in the season, give as large a proportion of eggs as any of the heavy breeds, while their yellow legs and skin give the chicks and tows an attractive market appearance.

They are harder to breed true to all the requisite points than the light Brahmas, but it is, therefore, more a matter of pride when the breeder succeeds in procuring a perfect specimen. Single birds are to be found in many flocks that may be considered first class, but to obtain a pair or trio that are well mated for breeding purposes is a different matter. As the breeders of this variety are not so numerous as formerly, the difficulty of obtaining "fresh blood" from strange yards is one frequently encountered, and especially as but few of the breeders know how to mate the fowls with the best results.

As a farmer's fowls they are hardly profitable. Crossed with ordinary hens the chicks partake largely of the points of the pure breed, and when properly kept and attended to they produce large carcasses in proportion to the amount of food consumed.—*Field and Fireside*.

Sorgo for Chicken Cholera.

In conversation, not long since, with an old retired farmer, one who has had a long experience in the west, and one who has been successful in farming, upon the question of chicken cholera, he said he fed cane seed to his chickens and found it to be a sure preventive for the disease. He said while his neighbors all around him had chickens die with cholera, time and again, he never lost any by disease when he fed the seed. He said he made it a point, after he gathered his crop of cane, to take his team and gather up the seed and store it away in a loft for feed, for his fowls during the winter and spring. Sugar cane seed is excellent food for poultry anyhow, and if it is a preventive of that fatal disease, chicken cholera, it would be to every one's interest to know the fact. Let it be tested.—*Farmer's Gazette*.

Successive Crops of Poultry.

Where labor is too costly, says the *Co-operative Poultry Post*, or where, as in a large family, no account is made of the labor of children, it is possible to obtain a large income from a comparatively small flock of fowls. This is accomplished by raising successive crops of chickens during the season. The first crop should be out of the shell by February 1, and the last installment by June 15. We are speaking now of raising chickens for market. The first hatched will be ready for market by the 1st of May and the last of Thanksgiving. The old fowls should be disposed of in July, or as soon as their services as layers and mothers can be dispensed with. The successive broods should be disposed of just as soon as they will command a fair price. The earliest will be in marketable condition in from eight to twelve weeks. They can never be more profitably disposed of than at that age, for as they increase in size prices decline, and so the extra food bestowed on them is actually thrown away.

By this method of promptly disposing of the chicks as they mature, the premises do not become overstocked and the soil of the runs foul, as is the case when large flocks are kept throughout the season to be sold at the holidays. By selling off the old stock in July the greatest possible profit is obtained from them. After this date they lay but few eggs, begin to moult in the fall, and perhaps lay not a single egg before winter. The extra pound or two of flesh they put on does not pay for their keep. By killing off all surplus stock by Thanksgiving the yards are cleared out and opportunity is given to feed and care well for the few that are to be kept over for next season's breeding. The extra care these few receive will induce early laying and broodiness in the spring, and these two points are essential to success. We have only outlined a method that is followed by many in the Eastern States, who have been successful in making money by raising eggs and poultry for the food market. The plan will have to be modified according to locality and other circumstances.

Prevent Chicken Cholera.

We find that our flock of thirty Plymouth Rock fowls, confined in a small yard, eat eagerly, and thrive upon any chopped green food offered them. When the early lettuce was gone, we by way of ex-

periment gave them chopped sunflower leaves, which were greedily devoured. We are convinced that cholera among fowls—as among men—may often be prevented by cleanliness, especially in drinking water. Few fowls confined in chicken yards, or even running at large, have access to perfectly pure water, or as much as they wish. The water left for them in vessels is soon soiled by their feet and excrement, and becomes a reasonable source of disease. We have kept large sardine boxes, which are about deep enough for fowls' convenience, and a wooden trough in our little chicken yard. These are emptied, rinsed, and refilled with fresh water twice a day—often if very warm. We have not lost a chicken by cholera, though our neighbors just across the street, and throughout the town, have lost a great many with that disease. Our care with the drinking water has been rewarded by plump, clean, young broilers.

To Langshan Breeders.

The disqualification—"surface color of plumage other than black, under color other than slate or black,"—it will be seen, prevents the exhibiting of specimens having any foreign color in their plumage—reddish and white feathers being of the prevailing color to look out for. An injured or diseased black feather generally turns white, but if removed, a sound and perfect colored one will come in its place. One going to exhibit should watch his birds closely, and feed and care for them in a way to secure them in the highest condition—perfect health.

LITERARY AND PERSONAL.

CANADIAN BREEDER, AND AGRICULTURAL REVIEW.—A royal quarto, weekly paper, published in the stock and farming interests of Canada, at \$2.00 per annum, Toronto, Canada, corner of Church and Front streets. An ably conducted, and mechanically executed journal, embodying not only the best material, but also the best stock and agricultural literature that can be made available to advance its aims and ends.

It is new, fresh, versatile, readable and instructive to those engaged in the specialties to which it is devoted, and ought to be a success. We cheerfully place it on our exchange list.

CANADIAN DAIRYMAN AND FARMER.—A monthly quarto journal, devoted to the dairy and allied interests of Canada, at 50 cts. a year. Published by the C. D. Co., at 162 St. James street, Montreal, Can. This is also a new competitor for public favor, and is very creditably gotten up; teeming with useful dairy and farm literature. Moderately illustrated, and worthy of patronage.

AMERICAN LIVESTOCK AND HORSE OWNER.—A demi-quarto of 26 pp. published monthly, by Jefferson Jackson, 16 and 18 South Canal street, Chicago, Ill., at \$1 per year. Finely illustrated, and fairly "bristling" with horse-lore; and all that relates thereto, that is worth knowing. The horse in his normal condition, is a very "absorbing" animal, and it is not at all surprising that so many become absorbed in him.

THE U. S. DAIRYMAN.—A monthly quarto journal, devoted to everything that pertains to dairying—the construction and operation of creameries, and the latest and most approved methods employed in making, packing and shipping butter, cheese and other products of the dairy; the selection of, and care of dairy stock. Published by the Dairyman Publishing Company, at 158 Clark st., Chicago, Ill., at \$1 per year, postage paid. 87 in clubs of ten. A solid journal, illustrated, and dealing largely in the causes and effects, the ways and wherefores of practical dairying.

THE GRAIN AND PROVISION REVIEW.—A demifolio of eight pages published weekly at Chicago, Illinois, at \$2 a year including postage. L. M. Wallace, editor. We would not willingly speak disparagingly of any publication, but if the number of this journal that is now before us (September 23, 1884,) can be taken as a criterion of its general character,

then we might be justified in saying that it is a reviewer that don't review, in the direction its title implies. After deducting the intensely partisan extracts, the magnetic and electric advertisements, including those of the great Missouri Steam Washer, there is precious little left, and that has no special reference to grain or provisions. Perhaps we don't know; well, perhaps not.

THE FARMING WORLD.—A large folio published weekly, at the "Palace Building," 6th and Vine streets, Cincinnati, O., at \$2 a year. It professes to be "a record of experiences—a journal of to-day;" and, so far as we can perceive at a cursory glance, it practices what it professes. To enable it to do so, however, it is sustained by a goodly number of practical correspondents and contributors from a wide region of country. It claims a circulation of 64,000, and aims at 100,000.

HOW TO GROW FINE CELERY.—A new method, by Mrs. H. M. Crider. Price 25 cents. Published by H. M. Crider, York, Pa. 14 pp. octavo. Inasmuch as a great deal of the celery found in our markets is not *fine*, it might be profitable for our celery growers to send for Mrs. Crider's Book; and we feel quite sure that celery consumers would call them blest.

THE DEBERICK, HAY, STRAW AND GRAIN REPORTER.—Fall edition, 1884. Including Albany, N. Y.; Montreal P. Q.; Paris, France; Mannheim, Germany; Vienna, Austria, and Moscow, Russia. General Business Office, Albany, N. Y. 8 pages folio, containing an immense amount of statistical and solid matter on all subjects relating to its specialties; and profusely illustrated. Interesting and useful to dealers in produce especially.

THE IRISH FARM, FOREST AND GARDEN.—Dublin, Saturday, September 30th, 1884.

"Health, Dennis, is the greatest blessing a poor man can enjoy." "Faith it is, your reverence, especially when he is sick."

"Why, that's not an Irish farm, it's an Irish bull." "True, but what were a farm without a bull, or a bull without a farm."

Seriously, soberly and succinctly, the 16-page, super-royal (monthly) quarto journal, entitled "The Irish Farm, Forest and Garden," is not only a credit to "Auld Ireland," but it also dignifies and illuminates any sanction to which it can gain access. Intelligently posted on all subjects relating to its specialties, it is a most useful medium of communication to the farming world; and, if any of our readers desire to patronize a foreign journal, we can with confidence recommend "The Irish Farm, Forest and Garden."

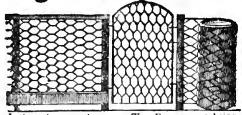
THE FARM AND WORKSHOP; PEORIA, ILLINOIS.—A magazine devoted to progressive agriculture, anti-monopoly, labor protection, and happy firesides in the United States. Super royal quarto of 12 pp. It publishes an official list of four full columns of persons engaged in various kinds of fraudulent business, and transparent cheats. In this it does well; nevertheless we sometimes are disposed to think that people like to be defrauded and cheated, so persistent are they in bestowing their patronage in that direction. Happy homes too, are not so much the result of external sunshine, as they are from that which illuminates and overruns from within. Established 1875. Subscription \$1.00 a year. Contents varied, appropriate, instructive and interesting.

THE WESTERN PLOWMAN, Moline, Ill., September, 1884. This is a super-royal quarto of 16 pp. well executed, and well filled with matter "devoted to the interests of home, farm, and family," at 50 cents a year. J. W. Warr, editor. Notwithstanding the excellence of its contents, the embellished cover illustrates the progress made in plows and plowing more forcibly than it could be done in all its 16 pages of letter press; and yet the world is looking for something in the plowing line more advanced still—something propelled by steam, electricity or magnetism, like a steamer plows the ocean—something that will never be realized until land becomes as level and ductile as water.

The Newark Machine Co. will arise at once from its ashes.

The Newark Machine Co., of Newark, O., whose factory burned on Saturday morning, July 5th, consumed a large number of Clover Hullers, Grain Drills, Rakes, Monarch Plows, &c. A large force of men are now at work building Clover Hullers, Grain Drills &c. They are getting out material at the B. & O. Shops, at Zanesville, and John H. Thomas & Sons, Springfield, who have kindly tendered them their factories, at which places they are getting out the woodwork for Clover Hullers, &c., and expect to have some on the market by August 1st. They have received many letters and telegrams from different manufacturers throughout the U. S., offering them all to any way. The firms that have heretofore supplied them with raw material, have telegraphed them, offering anything they may have that could be used in the construction of their implements, at low prices and long credits. Their insurance is about \$250,000, distributed among 61 first-class companies in this Country and Europe, and the adjusters are now here and at work and expect to finish the whole thing soon. The Company has commenced building one shop 225 feet by 40 feet, 2 stories high, and 300 feet of shelving, to be used for work shop and paint room, and they expect to be ready after August 1st to fill any orders in their line of goods.

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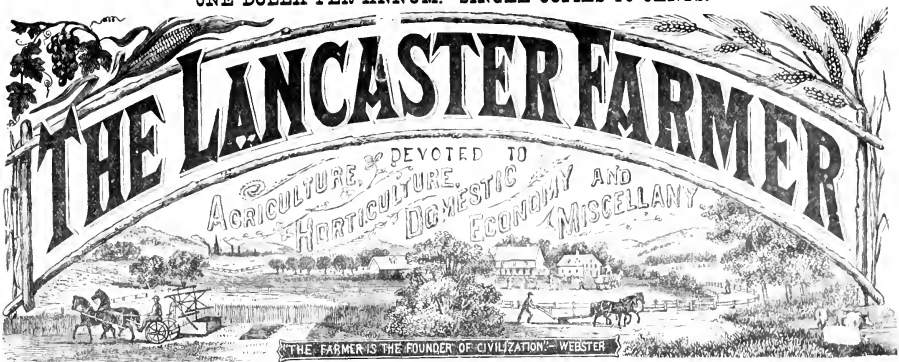
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LANCASTER PA., NOVEMBER, 1884

JOHN A. HIBSTAND, Publisher

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

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WE TWARD,	Leave Lancaster,	Arrive Harrisburg,
Pacific Express*.....	1:35 a. m.	2:55 a. m.
News Express*.....	6:25 a. m.	7:30 a. m.
Way Passenger*.....	6:30 a. m.	8:50 a. m.
Mail Train via Mt. Joy*.....	9:30 a. m.	10:50 a. m.
Mail No. 2 via Columbia.....	9:45 a. m.	11:05 a. m.
Nagara Express.....	9:45 a. m.	10:55 a. m.
Hanover Accommodation.....	9:50 a. m.	10:10-20 a. m.
Fast Lane*.....	1:55 p. m.	2:55 p. m.
Fredrick Accommodation.....	2:20 p. m.	4:50, 2:15 p. m.
Lancaster Accommod.....	2:20 p. m.	4:00 p. m.
Harrisburg Accom.....	5:00 p. m.	7:20 p. m.
Columbia Accommodation.....	7:30 p. m.	10:15 p. m.
Harrisburg Express.....	7:40 p. m.	8:50 p. m.
Western Express.....	11:10 p. m.	12:25 a. m.

EASTWARD,	Leave Lancaster,	Arrive Philadelphia
Mail Express*.....	12:12 a. m.	2:55 a. m.
Philadelphia Express.....	2:27 a. m.	4:20 a. m.
Fast Lane*.....	5:35 a. m.	7:30 a. m.
Harrisburg Express.....	8:10 a. m.	10:20 a. m.
Columbia Accommod.....	9:00 a. m.	11:45 a. m.
Seashore Express.....	12:50 p. m.	3:45 p. m.
Johnstown Express.....	2:20 p. m.	3:05 p. m.
Way Express*.....	5:25 p. m.	7:25 p. m.
Harrisburg Accom.....	6:45 p. m.	9:45 p. m.

The Fredrick Accommodation, west, connects at Lancaster with Fast Lane, west, at 1:55 p. m., and runs to Fredrick. Hanover Accommodation, west, connecting at Lancaster with Niagara Express at 9:45 a. m. will run through to Hanover daily except Sunday. Harrisburg Express, west, at 7:40 p. m. has direct connection to Columbia and York. The Fast Lane, west, on Sunday, when directed, will stop at Downingtown, Couteville, Parkersburg, Mount Joy, Elizabethtown and Middletown. The Johnstown Express from the west, will connect at Harrisburg on Sundays with Sunday Mail east, for Philadelphia, via Marietta and Columbia.

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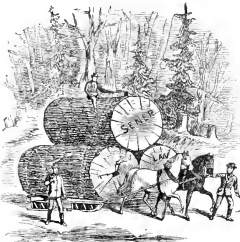
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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., NOVEMBER, 1884.

Vol. XVI. No. 11.

EDITORIAL.

NOVEMBER.

Then followed one who bore a staff,
And from the forest trees,
He struck the brown nuts in their hull
With every passing breeze.
Behind him, in a hamper, borne
By two daft rugged swains,
He brought the choicest winter fruit,
Just gathered from the plains.
Where'er he trod the moistened earth
In crystal'd hoar-frost rose,
And lulled the vegetating world,
In winter's grim repose.
Clad in a Leopard's spotted garb,
He hid the earth surrender
The emprise of the season to
The despot of November.

This month is numerically the *eleventh*, but nomenclaturally the *ninth* of the year. This month was remarkable in English history, as the one in which was culminated and exposed the famous "Gunpowder Plot," intended to destroy James I., with the Lords and Commons assembled in the House of Parliament, on the 5th of November, 1605. Robert Catesby originated the plot, and Guy Fawkes undertook to fire the gunpowder.

The 17th of this month also commemorates the accession of Queen Elizabeth to the throne of England, which was first celebrated in 1570, and is still kept as a holiday by a select few, or by certain public institutions.

The 25th of the month is remarkable in American history as being the day on which General Washington made his triumphant entry into New York, after its evacuation by the British troops, when our INDEPENDENCE was achieved.

In the political history of our country, under the Constitution, it is the month in which our Presidential election is held, throughout its entire jurisdiction; and in which party spirit temporarily culminates and subsides.

It is the month, too, in which is outwardly manifested the last vital kick of the destructive insect world. From hence onward until their vernal rejuvenation, with few exceptions, all are lulled into hibernal sleep.

The festal occasion of *Thanksgiving Day* is now also rapidly becoming one of the social landmarks of November, where it is not religiously celebrated.

The Latin name of the month is *November* or *Novembris*; French, *Prussien* and Italian, *Novembre*; Spanish, *Noviembre*; Portuguese, *Novembro*; Sancerit, *Mensis*. The name is derived from *Novem*, nine, being the ninth month of the old Roman year, which began in March. Our Anglo Saxon ancestors termed it *Wind-month*, that is *Wind-month*, in which old blustering *Boreas* asserted his sway. It holds about the same relation to winter that March does to spring, being a *transition* month. It was the ancient custom of seafaring men in November to "clew up" and remain at home until the month of March had bidden the year "good-bye." The cooler

temperature and the falling of the russet leaves admonish us that grim winter is rapidly approaching. Therefore, the careful farmer will now set about doing those things which are necessary to his own comfort, as well as the comfort of his various kinds of live-stock, by putting his dwelling, his barns, stables and out-houses, in provident winter trim. Water-courses should be examined and put in order. The pasture now begins to fail and stock demands increased attention. Root-crops, if any are still out, should be gathered. Asparagus beds should receive their winter dressing, and cabbages, carrots, parsnips, turnips, radishes and salsify should be stored for convenient winter access. Celery will be finally earthed up and onions carefully examined. In the long ago it was customary to admonish farmers, and people generally, to pay special regard to the "wood-pile," but the wood-pile is not so prominent a winter provision as it once was (being largely superseded by stone coal), but still it cannot be entirely ignored.

The long evenings and nights, and the short mornings and days are now upon us, giving the farmer an opportunity to store his mind with that knowledge without which he cannot expect to breast the march of human progress. A wonderful change has been wrought in the *status* of the human family, and farming, as well as other industrial avocations, must recognize the *fact* that "the world is moving."

INSECT PARASITES.

There are a vast number of animal *Parasites* that are not, strictly speaking, *insects*; but in these remarks we shall refer only to a few of those that are, in a restricted sense, insects, or that prey upon insects. Of course, the true state of the case can only be approximated, but if all of the truth were known, there is not a doubt in our mind it would be found that every denizen of the insect realm is, at least at one period of its life, infested by one or more parasites, and that these parasites are now doing, and have always been doing, and will continue to be doing more to diminish or "checkmate" the destructive or noxious species, than the application of all the artificial remedies that ever have been, or ever will be discovered or invented. Thousands of these parasites are never seen or recognized by the ordinary observer, and many of them are so minute that their presence can not be recognized even by the most astute observer without the aid of the microscope. Whilst this is so in an eminent degree, there are hundreds that are conspicuous, some of which are nearly as large in size as the hosts upon which they prey; but these, and the good offices they perform, are not noticed by the common observer—not even by those whose pecuniary interest it is to *know* them, and to avail themselves of the advantages of such knowledge. The very best artificial remedies can only be partially or imperfectly applied under the most favorable auspices. They are often applied impulsively, spasmodically, at irregular intervals, and without

effective intelligence. One man in twenty may apply them and the other nineteen refuse or neglect to do so in cases where it is plainly the duty of all to co-operate. Even if the individual *knows* that he possesses the proper remedy and does not apply it in the proper manner, at the proper time, and at the proper place, his labor may be in vain. Moreover, he may give his attention to it only for a few minutes, or even a few hours, "now and then," during the day, and then rest in a sort of repose, under the impression that "he did it," whilst the insects may be "pursuing the even tenor of their way," indulging in their luxurious repast and smiling (if smile they can) at his most egregious simplicity.

This is, however, not the *modus operandi* of the insect parasite. Born with all the instincts necessary to the development and perpetuation of its species from the very moment it is excluded from the egg, or evolved from the pupa, it knows exactly what to do, how to do it, and when and where it can most effectually be done. If not held in duration, or thwarted by human intervention, it never makes a mistake. It seeks a *nidus* for its progeny in the body of a living insect and never in a dead one. If there were five hundred dead caterpillars—or other insect larvæ—and only one living one, that living one would be selected for its prey, and all the others rejected. Many insects have but a single parasite, but some of them have as many as a hundred. This may be owing to the size of the host, or may depend upon other causes, but it rarely occurs that the provident mother furnishes less food than is necessary for the full development of her family, however numerous it may be. Not only are very minute insects infested by parasites, but their eggs are also infested, and often the parasite itself is infested by still smaller parasites belonging to a different Order; thus practically illustrating that—

"The little fleas that do so tease,
Have smaller fleas that bite 'em,
And these again have lesser fleas,
And so do infinitum."

Some of these parasites deposit their eggs in the bodies of larvae that are not at all exposed to the outer vision, but are secreted within solid timbers, or inclosed in tough envelopes or sacks; and for that purpose they are provided with long ovipositors—in some instances three or four inches in length, and they can reach a larva that is just so many inches from the surface of the timber, and they also know where the host is located. We verily believe that if it were not for parasites the vegetable kingdom would ultimately disappear from the earth; and doubtless when destructive species disappear, and are not seen again for a number of years, the cause has been parasitic infestation. Of course, when the host is extinguished in a locality the parasite will also disappear in that locality. The following cases will illustrate the potency of these insects, so far as they go:

The Sack-Worm.

(Thyridopteryx epichmarferaria.)

The "Sack-worm," alias "Bag-worm," "Basket-worm," "Drop-worm," and other local names, has been numerous and destructive the past season, and especially so in some of the Southern States, and most especially so, about Atlanta, in Georgia; at least, a special wail came up from that locality, both by public and by private communication, as may be perceived on page 132 (September No.) of the present volume of the FARMER.

The first specimen of this insect that came under our observation (to the best of our recollection) we found on a locust tree, about 1844 in York county, opposite Marietta. Nothing came of it; for, it either died in its sack, or had issued from it, before it came into our possession. About a year thereafter, a short paragraph cut out of a Philadelphia paper, was given us, the purport of which was that Mr. Peal, of Philadelphia, had found two of these sacks pending from a branch of a tree on the banks of the Wissahickon, in the year 1813 or 1814; from the brief description of which we concluded they were the same as the one we found in York county. We did not see or hear tell of another specimen, until we removed to Lancaster city in 1848, where we met them in great abundance during the years 1849, 1850 and 1851, when we commenced a series of observations on them, and traced them through all their transformations, from the *ova* to the *imago*. These observations we committed to paper, but the manuscript remained in our possession until the summer of 1854, when, at the request of the publisher of the *Pennsylvania Farm Journal*, they were published in that paper under the provisional name of *Oiketicus pennsylvanicus*. About the same period an article by Dr. Harris, on the same insect, was published in, we think, the *Rochester Horticulturalist*, Dr. H. naming it—from specimens sent to him—*Oiketicus confurcatus*, because the specimens had been taken from a pine tree. It appears however that it had been previously described, and named as above. No such has been published in reference to this insect that it is hardly necessary to say anything, either description, or on the manner of destroying it. Its operations are so conspicuous, and it is so accessible withal, that if any one suffers by it, it must be purely their own fault.

What our special purpose is on this occasion is to refer to the fact that this insect is preyed upon by several *parasitæ*, which, if proportioned to the number sent us, are sufficient to keep it in reasonable check. We placed four of the Southern specimens in a glass jar, and it was wonderful to see how deftly they could crawl up its sides, drawing their sacks after them, and mooring them at any time or place in a moment, and retreating within them. Seeing that they would not feed we set the jar aside, and did not examine it again until the 1st of October, when we found three empty brown pupa-skins and three *Tachina* flies, something larger than the domestic house-fly. On opening the sacks we found in one a male *pupa*, and in the other three the shriveled bodies of the partially consumed *larvæ*. Here were three out of the four destroyed by parasites. We are not prepared to say that three out of four *per se* would be

subject to parasitic infestation; but, on the other hand, it might possibly be a greater percentage.

Now, the wonder is how a parasite could approach this insect at all, much less succeed in depositing an egg in or at its body. From the period when the young larva is excluded until its evolution as a male moth (the female never leaving the follicle or sack) these larvae are enveloped in a tough silky sack, covered on the outside with shreds or dry leaves, and so well protected that we think no bird can dislodge them—at least, we have seen chickens attempt it and abandon it with disgust.

But it appears they are not inaccessible to parasites. As early as 1859 or 60 we opened one of these sacks and found the inner cavity filled with white silky cocoons, numbering a half dozen or more. These, in the multiplicity of other more pressing occupations were set aside, and when subsequently examined the insects had escaped, if they had not already escaped before we discovered their cocoons. This is, perhaps, the Hymenopterous insect found under similar circumstances, and described by Prof. Riley as *Henites thyridopteryx*, p. 156. First Report on the Noxious Insects of Missouri.

Mr. Glover, in his unpublished plates, figured *Cryptus inquisitor*, of Say, as parasitic on the sack-worm. Say describes several species of *cryptus* perhaps without knowing their parasitic habits.

The parasites described by Say and Riley, are however *Hymenopterous* insects; but the one we refer to is *Dipterous*, and to illustrate that they could not have been introduced into the jar extraneously, one of the pupa shells was found within the unopened sack, the fly of which escaped no doubt through an elastic, or collapsed aperture, through which the young sack-worms escape, at the lower end of the sack. This fly is pretty large in proportion to its host; and therefore a sack-worm may only afford sustenance to one parasite. Very little more than the heads and two of the anterior segments of the sack-worm remained unconsumed. In a practical sense, that is as much as can be desired. The destruction of one female sack-worm defeats the possibility of a subsequent brood of two or three hundred. The benefits of these parasites are, therefore, very evident because nothing but these, and hand-picking can reach them. The application of a liquid or a powder would be of little avail. These sacks hang upon the trees all winter, and no matter how cold and wet, and freezing it is, inside of the sack it is "dry as powder," and the eggs, or embryonic sack-worms, are beyond the evil influences of "wind and weather." Our limited entomological literature yields no instance of tachinic infestation (or we have overlooked it) so far as it relates to the sack-worm, and from a peculiar characteristic of these flies—their rapid or swift flight—they would seem to possess the necessary activity to enable them to oviposit in, or on the body of a sack-worm; for in endeavoring to discover how they managed to draw themselves perpendicularly over the side of a glass jar, only the sounds caused by our breathing would cause them instantly to draw in their bodies, and collapse the upper end of the sack. Under such circumstances, as we

have before intimated, the sack would not drop to the bottom of the jar, but would remain fixed until the worm would project its body again. The secret is, they spin a very fine, strong, elastic and adhesive silk cord, which is constantly in communication with the mouth-parts, and this seems to immediately adhere to any substance which the insect touches—indeed, in traveling over a verticle glass surface, the head seems to be more employed than the feet. This insect then, which has heretofore been regarded, to some extent, as proof against parasitic infestation, is as likely to become, *tachinized* at least, as any other insect.

According to observations made by Harris, Walsh, Riley, Kirk and others, there are some fifteen or sixteen species of *TACHINIDÆ* that are parasitic on Army-worms, Canker-worms, Cotton-worms, Maple-worms, Leaf-crumplers, the larvæ of *Attacus cecropia*, *A. polyphemus*, *Dryocampa rubicanda*, and the Colorado potato beetle. Namely, seven of *Tachina*, six of *Eorista*, and one or more of *Lydella*; and we think that two more may be added, namely, those of the *Thyridopteryx* and the *Empretia*. Of these genera Curtis has catalogued twelve species of *Eorista*, eight of *Lydella*, and four of *Tachina*; and many other allied genera and species.

Whether the two individuals to which we refer in this paper are new species, or whether they are among those that have already been described, is a matter left to future determination; not being essential to the economic discussion of the question. Our object is merely to illustrate that insect parasitism exists more widely than is usually suspected, that it is becoming yearly more manifest, and that it exercises a greater influence over the development of the insect world than the ordinary observer ever dreams of. Suppose that the *Bag-worm* and the *Saddle-back* were to become as numerous and wide-spread as the *Rocky Mountain Locust* and the *Western Chinch-bug*; what, except hand-picking, could more effectually exterminate them than parasitic infestation? True, the *Saddle-back* moves so very slowly that it might easily be destroyed by poisonous compounds, but nobody would care to remove it with the naked hand, seeing that they might suffer more than they would by handling poison. Here then the ubiquitous parasite comes in most appropriately as the friend of the human family, for the preservation of the plant world effects the interests of the consumer as well as the producer.

Saddle-Back Moth.

(Empretia stimula.)

We never knew the larva of this insect to be more abundant than it has been the present season (August and September, 1884); nor did we ever before meet with so many people who had seen it for the first time, and who were more completely ignorant of its previous existence. "Certainly something new" was reiterated by every one who brought us specimens. Neither did it ever before become so manifest to us what a destructive scourge this insect might become, if it ever approximated in number, the "Army-worm," "Canker-worm," "Cabbage-worm" or "Colorado Potato Beetle." Apple, pear, quince, plum, lilac, rose, elm, linden, corn, plantain,

cabbage, and various species of grass, were vegetable substances upon which it was found feeding, and upon some of them so numerous that it had entirely defoliated the parts of the trees, shrubs and plants it infested. Usually this larva has been brought to us in single and isolated numbers, but during the season just closed it was frequently brought to us in tens. Indeed, very early in the spring (1884) Mr. H. Zahn gathered, on one occasion, between twenty-five and thirty of their cocoons, found about the base of a hop vine, which he destroyed, supposing them to be an enemy of the hop vine, although he had not noticed any larva on the hop vines the previous season. He brought us two of these cocoons in the beginning of the month of April, (he not knowing what they were,) and on opening them they revealed the larva of *Empretia stimula*, living and almost as fresh in coloration as it usually is found before it spins itself up. The anterior and posterior fleshy horns were backward and forward compressed upon the back, and partially divested of their spiny barbs. On seeing the larva in its full state of development, it is difficult to understand how it can manage to compress itself within such a small, symmetrical, spherical cocoon. Intimately related to the possibility of this insect ever becoming a serious infestation, is the redeeming fact, that it is itself the subject of parasitic infestation, and perhaps this may be the cause of this irregular and infrequent presence.

We confined seven of these larvæ in a glass jar with a wide mouth and a wire-net cover. Only one of them seemed to relish the food we gave them (pear leaves) and that one soon spun itself up in a nicely shaped cocoon. The other six ate sparingly, and finally abandoned the food entirely, affixing themselves to the sides of the jar, never removing from the spot first selected, although on various occasions we introduced fresh leaves. Supposing them, of course, to be dead, on the first of September we essayed to remove them. Although they adhered to the glass by the whole ventral surface, yet we found their bodies shrunken and empty, and the anterior and posterior spiny horns almost meeting on the centre of back. Beneath them respectively on the bottom of the jar, we found six specimens of a brown (evidently Dipterous) pupa, 15 millimetres in length, and from four to five in diameter; tapering from the middle towards the ends, but more abruptly towards the one end than the other; but no fly has yet (October 15) evolved, and probably they all have died of drouth. These larvæ were very probably "tachinized" before we received them, and the evolution of the parasites defeated by their unfriendly surroundings. Not suspecting their presence, we did not happen to see the larvæ of the parasites, but suppose they approximate those of *Tachina*. We are, at least, practically impressed with the fact, that *Empretia stimula* is infested by a parasite that totally destroys it.

According to our observations this insect is gradually, but slowly increasing in numbers every season. Forty years ago we only found an occasional specimen or two, during the entire summer season—indeed, we have no distinct recollection of ever having found a specimen at all until we made Lancaster city our

residence in 1848. *Lumicoles scapha*, an allied species, was occasionally found at Marietta, Pa., but we have never found it in Lancaster. The family to which these insects belong (CONCHILOPODIDE) exhibits some of the most unique and grotesque larva forms that are found in the entire order LEPIDOPTERA—some of them so completely disguised, that a novice would never suspect that they were insects at all.

The larva of the species which is the subject of these remarks possesses a peculiar quality that causes people to avoid it who have ever come in contact with it, with the naked hand. The slender spines with which the fleshy horns are covered produce an exceedingly burning, and sometimes painful sensation, if they happen to only touch the back of the hand, or any portion of the body where the skin is delicate or thin. Very few of those who have met them for the first time but what have had the peculiar burning inflammation, resulting from incautious contact with them. The spines are very sharp and barbed, and are said to be hollow, and when the minute point penetrates the skin an infinitesimal drop of an acrid liquid is injected, which produces a sensation similar to nettles-rash intensified.

The body of the full grown larva is about three-quarters of an inch long, three-eighths of an inch broad, obliquely truncated at both ends, with a pair of long fleshy horns, slenderly spined, and a smaller pair beneath them, at the anterior end, above the head; a similar posterior pair; and a small anal pair beneath them. That portion of the body which is between the anterior and posterior horns, is a fine, bright green, bordered with white, and has an oval reddish-brown dorsal patch, bordered with white, and again bordered with a narrow black line. This dorsal patch has suggested the common name of "saddle-back." The horns and the anterior portion of the body are a reddish-brown, with a yellow spot between the anterior pair, while the posterior pair rises from a yellow patch. After the last moult the horns diminish sufficiently in size to enable the larva to compress them within the cocoon. We have never been fortunate enough to see the pupa.

The moth is short and thick, less than half an inch long; the body and fore-wings are a uniform dark fennuginous color, with two white spots (in the female, and four in the male,) near the base of the wings. The hind wings are a pale reddish-brown. Rather a plain insect, considering its gaudy larva.

Tachina Flies.

(Tachinidae.)

Without intending to depreciate the good offices of the "Ichneumon Flies"—a very large and effective family of *Hymenoptera* parasites—we desire to call the attention of the reader to the existence of the *Dipterous* family TACHINIDÆ; which, if not so numerous as the former, yet, puts in as much effective work, in proportion to its number. When we say numbers, we allude more particularly to genera and species; as to individuals of the same species, occasions have occurred when they were present in thousands. *Tachina* is the typical genus of the family, and perhaps *per se*, the most numerous in species. The larvæ of many of the

LEPIDOPTERA are infested by these parasites, and it is a consolation to know this, when we reflect that this whole order in its larva state preys upon vegetation or its fruits, with scarcely a single exception. All these flies bear a general resemblance, in size and coloration, to the common house-fly. (*Musca domestica*.) The white parts are more silvery; the dark parts black, and they are all more bristled. The posterior margins of the abdominal segments and especially the caudal segments are often conspicuously bristled. The head, the thorax and the base of the *antennæ*, are also more or less bristled. They are also more active and swift in their flight than the domestic fly—and they need to be, to succeed in depositing their eggs upon other insects. *Tachina ultior*, Prof. Riley describes as being parasitic on the "Cotton-worm." Although it has not yet succeeded in destroying all the cotton-worms, from the very nature of the case, it must have, not only destroyed immense numbers of these pests, but it has prevented the development of, by far, a greater number. *Tachina angustipera*, according to Dr. T. W. Harris, is parasitic upon the body of the "Canker-worm," the tree upon which this pest is feeding sometimes fairly swarming with these flies. This is surely more hopeful than the attempt to plow the army-worms under, as had been suggested or tried in the State of New York.

Tachina bifasciata, according to Riley's Fifth Report on the Noxious Insects of Missouri, is parasitic on the body of a Maple-worm (*Dryocampa rubicanda*). Another species, namely, *T. bicincta*, is said to be parasitic on the larva of the same moth. *Tachina archippivora* infests the beautiful large "Archippus butterfly." True, the larva feeds on the *Asclepias*, or "Wild Cotton," a plant which as yet has no special value, but it illustrates no less the functions of insect parasites. Dr. Harris also mentions *Tachina nivalis*, but it is not clear on what it is parasitic—perhaps also the Army-worm. *Eorista militaris*, Prof. Riley, in Vol. I. of the *American Entomologist*, describes as parasitic on the Army-worm, and that he has witnessed their presence in large numbers. Riley designates this species, in common language, as the "Red-tailed *Tachina*." Here we are reminded that on one occasion we confined about a dozen specimens of the "Army-worm" in a box, with moist earth, and a gauze lid. From these we bred but three moths. One or two of the worms died without entering the ground, and from six or seven of them evolved that number of gray flies—hairly, but without the "red tail."

Eorista cecropia, Prof. Riley bred from the large and beautiful "American Silk-worm," or "Cecropia Moth," and *Eorista heaniana*, from the "Army-worm;" and *E. baricauda*, or "Yellow-tailed *Tachina*," from the same; also a variety, named *E. ostensackenii*. Dr. LeBaron bred *Eorista phycito* from the larva of *Phycita*, or the "Leaf-crumpler." *Eorista œconomia*, was bred by Riley from the larva of the *Albion polyphemus*, and other of the large American Silk-worm moths. *Lydella doryphora* was bred by Riley from the larva of the "Colorado Potato Beetle;" and it unquestionably has done much in restraining the duplication of that destructive insect, about which we do not hear as much as we formerly

did. *Insect parasites and Parasitæ*, if they have not proved exterminators, have at least become very efficient restrainers. The total extinguishment of noxious insects is perhaps not absolutely essential to the preservation of the vegetable kingdom, but an unceasing effort should be made to harmonize their economical relations, and this is perhaps all that ever can be done.

To this list ought also be added the two species that are parasitic on the larva of *Thyridopteryx* and *Euprotia*; or the "Sack-worm" and the "saddle-back," whether they are *new* species or not. It may be taken for granted that there are many more species of these Dipterous parasites than those already enumerated that are still undescribed, or whose particular habits are unknown, except by analogy. Indeed, R. OSTENSACKEN, in his catalogue of the DIPTERA of North America, published by the Smithsonian Institution in 1858, enumerates 115 species belonging to the genus *Tachina* alone; and, we may infer from what is known of these insects, that many of them are parasites, in some degree, if not entirely so. Just here we would remark that twenty years ago, or more, in exploring the contents of a long-neglected wooden box containing shreds of fine woolen fabrics, we discovered a number of large, dirty-white maggots, very active, but did not notice particularly that they had done any damage to the contents. We carefully closed the box and set it aside; on a subsequent examination we found a half-dozen large grey two-winged flies, similar to "house-flies," but larger, brighter grey, and bristled, as the *Tachina*s usually are. We also found a number of dead pupæ, as well as the empty pupa shells from which the flies had evolved. Osten Sacken in his catalogue does not recognize the genera *Errosista* and *Lydella*, although they are comparatively old genera, catalogued by Curtis as early as 1837. The family TACHINIDÆ may be regarded as a sub-family, eliminated from the great family MUSCIDÆ, of which the genus *MUSCA*, including the common domestic house-fly, is the type. All these flies (parasitic or otherwise) are wonderful factors in the harmony of nature, and its normal balances cannot entirely "gang a glee," where their influence is permitted to prevail. So far as concerns the history and habits of these flies, it makes very little difference to what particular genera they may be referred in their family; it is their economical relations to the noxious species of insects and the products of human labor, that the husbandman is most interested in—whether in them he recognizes a friend or a foe.

The presence, finally, of noxious insects, their rapid increase, their annoyance, and their frightful destructions, are no doubt permitted in order to inculcate human prudence, human wisdom and human vigilance—illustrating that it is best that man should earn his bread "by the sweat of his face." Suppose, when we desired "golden guineas," or jewelry, or the thousand and one implements and instruments that enter into the domain of human economy and convenience, they should be found spontaneously growing upon trees, and needed only the stretching forth of the human hand to possess them, is it likely that any one would voluntarily assume the labor

of mining the crude ores and submitting them to the manipulations of the assavist and the manufacturer? Who would trouble himself about making a coat, or a shoe, or a hat, if these things were spontaneously produced just at the time and place they were wanted? Look at the nations whose wants are supplied through the nearest approximation to spontaneity, and what are they? Indolent and illiterate greasers at best, if not ignorant and treacherous knaves. No; man must provide against the redundancy of noxious insects, just as he provides against the chilling blasts of winter, or the torrid rays of summer, and in the former case he has a potent auxiliary in *insect parasites*. If he commits the economic sin of ignoring these collateral helps he must suffer the consequences. Until these are discovered, or developed and become effective, of course he must make use of such appliances as his inventive genius may suggest, always acting with that intelligence which would prevent his defeating the very end he seeks to accomplish. But this requires thought, careful observation, discrimination, and practical experiment. The cock-pit, the bear-beat, and the race-course require the same to become a success, and they get it too. Some of this knowledge may come slow and some negatively. When we find out by experience what a thing is *not* we have made one step toward a knowledge of what it *is*. The best things often come "little by little."

We do not think there is any danger of any species of insect becoming permanently, either endemic or epidemic, mainly, because of their liability to parasitic infestation, although it might involve great destruction before the parasites became effective; and we believe that the occasional redundancy of certain species, and then their almost entire disappearance is often, if not always, the effect of a parasitic cause. Of course, no one would expect a parasitic species to *preclude* its hosts; but it would be quite natural for it, in due time, to follow it. Some twelve or fifteen years ago we noticed, during the summer season, a very large number of dark (nearly black) spiders, among the rocks in the bed of the Susquehanna river. The river was very low, and these spiders were found in fissures and overhanging cavities, and their domain seemed to reach half way across the river. They deposited their eggs in large patches against the sides of the rocks, and especially in such places as projected over the water. These eggs were covered over with a brittle, white, shell-like substance, similar in texture to the "bone" of cuttle-fish, and occurred in masses as large as a man's hand. Occupying one of those rocks, vainly endeavoring to beguile a fish to our hook, we "gave it up," and essayed an exploration of the rock cavities, and the white scales on their sides. Spiders eggs were present in many thousands, and on the least pressure their yellowish fatty contents would ooze out very freely. In some of them we found many small yellowish "grubs" and pupæ, and in others the pupæ and the *imagoes* of a species of COLEOPTERA, belonging to the family ANTHICIDÆ, of which there are about fifty or more species belonging to the genus *Anthicus* alone. There were perhaps hundreds of these little coleopters present. The year following, there were neither spiders nor parasites in that locality.

Take the "Rocky Mountain Locust," as another instance, and it doubtless can be demonstrated that as many of these are destroyed, or prevented by the various species of parasites, or *predators*, as are destroyed by any, or by all, other causes combined.

"ADAM AND EVE"

(*Aplectron hycemale*.)

On the 7th of the present month we received from Mr. J. H. Clare, of Mastersonville, Lancaster county, a fine specimen of an *Orchidaceous* plant, known under the common names of "Adam and Eve," and "Putty root," which, although found from Canada to Florida, according to botanical authority, is still by no means common, if not rare. It has been many long years since this plant was first brought to our notice—near the junction of the Big and Little Chiques creeks, about the year 1822—and, so far as we are able to recall the circumstances, some mysterious medicinal value was attached to the plant. We did not then know that it was rare—several specimens having been found in the same locality—although we never come across it except in one single instance in the long interval between "now and then," and that was in *Kreutz Creek Valley* in York county, nearly forty years ago. A practical botanist, in special quest of it, would no doubt have found it more frequently. As already indicated, this plant belongs to the MOXOCOTYLEDONOUS family ORCHIDACEÆ; of which there are twelve genera and twenty-nine species, recorded in Dr. Porter's catalogue, as belonging to Lancaster county; but only one belonging to the typical genus; namely, *Orchis spectabilis*. In our youth it was supposed that this plant was invariably found with only two *caudex*s, or tubers attached by a slender stalk, hence the name "Adam and Eve," but botanical authorities state that there are frequently three and sometimes four or more. The specimen before us has very distinctly *three*; from one of which arises "a large, oval, many-nerved and plaited green leaf," which is said to continue throughout the winter. These tubers are said to be filled with an exceedingly glutinous matter, and probably if the plant possesses any healing quality at all, it is in this glutinous matter. Our early impression was, that it was used as a diuretic; but, we do not find it at all in Barton's *Medical Botany*, and hence its medicinal virtues may have only been a common local *notion*.

Many of the orchidaceous plants are parasitic on other species of vegetation, and some of them are what are termed "Air-plants." Some of the genera in the family to which this unique species belongs, are remarkable for their floral beauty; but we have never had the fortune to see the one under consideration in bloom, having always found it late in autumn. Another peculiar characteristic of some of them is, that they absolutely move—not remaining precisely in the same spot of earth continuously. KIND, in his *vegetable Kingdom*, p. 269 says: "An orchis, when taken from the ground is found with two solid masses, of an oval form, at the base of the stem; above which spring out the thick fleshy fibres which nourish the plant. One of these bulbs or tubers is destined to be the successor of the other, and is plump and vigorous,

whilst the other or decaying one, is always wrinkled and withered. From this withered one has proceeded the existing stem, and the plump one is an offset, from the centre of which the stem of the succeeding year is destined to proceed. By this means the actual situation of the plants is changed about half an inch every year; and as the effect is always produced from the side opposite to the withered bulb, the plant travels always in one direction at that rate, and will in a dozen years have moved six inches from the place where it formerly stood."

From a foreign species (*Orehis muscula*) a substance is manufactured called "Salep," which is nothing more than the cleaned and dried tubers of this and other species of *Orehis*. Salep is said to contain the greatest quantity of nourishment in a given bulk, that is known to any other vegetable body. It has been said that an ounce of powdered salep, mixed with an ounce of animal jelly, and boiled in two quarts of water, will be sufficient food for an able-bodied man for a whole day. This is perhaps its chief medicinal virtue, and it needs no other if this be so. Probably the glutinous bulbs of "Adam and Eve" would yield the same nourishment; but whether a sufficient quantity could be obtained anywhere to make its preparation an object, would greatly influence the question.

EXCERPTS.

The preservation of straw for feeding purposes is very important. It is best secured at or immediately after threshing time. The chaff, especially of wheat straw, is most valuable, and should, as far as possible, be distributed through the stack. That which is left in rear of straw carrier should be put under shelter, as it rots easily.

ANY farmer that desires to have a pleasant prosperous home, clear of mortgage, must take care of his farm machinery. The ordinary life of a reaper, mower, thrasher, and in fact of most farm implements, is, with good care, about ten years, while with poor care, from three to five years is the limit.

INTELLIGENT farmers, as a rule, are pretty well posted on the current markets; but many are not, and on account of their want of knowledge often are caught either in buying or selling, on one lot of stock, to an amount sufficient to secure the means of this information for many years.

GUM ARABIC, a half ounce; powdered gum tragacanth, a half ounce; acetic acid, twenty drops, with an ounce and a half of water, mixed together, will form a paste by which paper may be firmly fastened to wood.

MANY farmers, whose apples are a profitable crop, are utilizing the roadside by planting some of them near or on the road line. The roots, of course, extend to the road, get the wash from the droppings of the horses driven thereon, and otherwise fare much better than trees planted in fields except in grass or gain. Another advantage the apple tree by the roadside has is plenty of room to spread its branches and ample sunlight to color and give flavor to its fruit.

THE USE OF ARSENICAL INSECTICIDES.—Professor Lintner gives in substance, in his

recent report, the following precautions to be used in applying Paris green and London purple for the destruction of insects: First, never distribute them with the hand, as an abrasion of the skin might result in serious harm; second, apply the powder with the wind, so as not to breathe it, third, apply only to leaves and fruit from which it will be entirely washed away by long and repeated rains; fourth, exclude all animals from feeding on the poisoned crops; fifth, test the strength of the prepared poison on a few plants first, lest it may be too strong and injure them; sixth, use it no stronger than will kill the insects.

We find the following in an exchange: Butter is in the cream in the form, principally, of particles of fat, inclosed in a membranous covering, the whole called a globule. The particle of fat has an individual structure. This structure may, by the force of heat or friction, be destroyed. To save it in its natural form is to "preserve the grain." Butter with a perfect or natural grain has many essential qualities that give it value. It has a finer color, and a clear, waxy appearance, unctuous taste, and a good keeping quality. The melting point of butter, upon which many depends its keeping quality when subjected to a high temperature, depends, in turn, mainly upon its structure or grain. If butter, on its way to consumers, is to be exposed to the influence of heat, it must have its structure preserved, in other words, it must have a good "grain."

OLD putty can be removed without injury to the sash or glass by passing a hot soldering iron over it. The heat of the iron softens it readily, and permits its removal with a knife or chisel without much trouble.

MARSHALL P. WILDER says that the maturity of fruit depends on the saccharine matter contained therein, which is followed by the vinous or acetous fermentation, and to prevent the latter and preserve the fruit and all its beauty, freshness and flavor, the temperature must be kept below the point which fermentation or the ripening process begin.

SUCCESSFUL farming will depend in the future largely on avoidance of waste. We are learning how to make land productive; how to market crops advantageously; when to sow and when to reap—are we learning how to save? We lose from negligence; from unskillful manipulation of farm products: from keeping unprofitable stock; from wastefulness in feeding; from hiring cheap and insufficient help. These losses seem intangible but they represent "hard cash."—*Rural New Yorker*.

RASPBERRY CANES are sometimes allowed to remain all winter, but President Ohmer, of the Ohio Horticultural Society, prefers to cut them as soon as he can find time after their fruiting. By carrying them away and burning them at once he is satisfied that many noxious insects and worms in various stages of life are destroyed, which, under the other system, would live through winter to plague him another year. It is argued that the leaf of the old cane has much to do in the growth of the canes that are to bear fruit the following season. But on this point Mr. Ohmer says: "If your plants are in good condition there will be leaf enough on the young canes

to mature them without the assistance of the leaf of the old canes that have already performed their functions by maturing the crop of berries just gathered. Then, again, the old canes are certainly not ornamental. Having an eye for the beautiful as well as the useful, I get rid of them as soon as I can after the fruit has been gathered."

ONE reason why butter and other substitutes for genuine butter find so ready a sale is that few people are capable of distinguishing between the real article and the counterfeit. And this is not the fault of the average buyer, for he enjoys but slender opportunity to cultivate his taste. Give him an opportunity to use good butter now and then, and he will soon learn to know and appreciate it. One way to drive imitation butter away from the market is to fill it with the genuine article of first-class quality. Butterine, which may have 25 per cent. of good creamery butter with 75 per cent. of deodorized lard, or some other clean grease, is really more palatable than the unadulterated but carelessly made and often rancid "rolls" sold in the country stores, or the tubs and irkins which find their way to market several months after they are laid down. The dairyman who puts second-class butter on the market is giving aid and comfort to the enemy.

MUCK AS MANURE.—Professor Caldwell is quoted as saying: "It is a matter always of dispute whether it pays to dig muck and use it as a fertilizer. The different results always arise from two sources, an understanding of composting or other preparation, or a failure in the muck itself, not having a sufficient amount of organic substance. The different values of muck may be roughly arrived at by first thoroughly drying the samples of muck in an oven, then with small scales weighing out exactly a pound or half-pound of each, and placing them on a piece of iron, which should be gradually brought up to red heat. The ashes of these when weighed will tell this value; the muck which retains the most weight will be the best manure."

THE NITROGEN SUPPLY.—Professor Sanborn has been making some experiments in the exhausted farm land of Missouri, and finds that the application of nitrogen, the most expensive element of plant food, actually diminished his corn crop. Winter wheat, however, under the same treatment, showed marked improvement. Like results have been noticed elsewhere, and Professor Sanborn suggests as an explanation of the puzzle that winter wheat grows in seasons of the year when, neither by ferments or oxidation, available nitrogen compounds are being formed in the soil extensively. Corn, on the contrary, grows in the hot season when such compounds are formed, and, therefore, to effect this crop favorably potash and phosphoric acid are needed.

A CORRESPONDENT of the *Country Gentleman* gives a valuable hint to those who intend to regrant old apple trees. He has found the Northern Spy one of the very best to graft on old trees, as it comes into bearing soon, and is really often more profitable than when root-grafted when young. Its tendency to grow wood and foliage rather than fruit is checked by the slowly moving sap of the old

tree, and it will bear as heavy manuring as can be given, not only without injury but with positive advantage. Some old trees grafted twenty years ago to the Northern Spy gave him more apples the past fall than all the trees in the young orchard planted a little later. The Northern Spy on old trees has a habit of bearing a little every year, though every other season the crop is nearly twice as great as in the off years. It takes young Northern Spy trees so long to get into bearing that there is little profit in setting out young trees of this variety, but there is none better for re-grafting old orchards that do not produce good fruit.

LARGE ORCHARDS.—A. R. Whitney, of Franklin Grove, Ill., has now about 170 acres in apple orchards (according to the *Prairie Farmer*), and he has expectations that the crop this year will reach 18,000 barrels. The orchard is larger than the famous Chapin orchard, of East Bloomfield, N. Y., which occupies about 125 acres, but not nearly so large as that of Robert McKinstry, of Hudson, N. Y., covering about 275 acres. Mr. Chapin had 10,000 barrels of apples in 1879, which sold for \$17,000. Mr. Kinstry had 20,000 barrels in 1878, and about the same in other years. He raised most largely Rhode Island Greening, Baldwin and Tompkins King, and several others in less numbers. Mr. Whitney finds Red Astrachan, Maiden's Blush, Willow Twig and Dominion, most profitable in that region of Illinois. Single trees, in some instances, have given \$1.50 each. The Yellow Bellflower proves worthless; the trees give only a single crop, and that was after a severe root-pruning. Bailey Sweet has been a valuable sort. When the price of Mr. Whitney's apples are not over \$1.25, he converts them to vinegar; at three dollars a barrel they are quite profitable. On this prairie soil lime is very beneficial; and to apply it old mortar was spread under the trees, and was worth ten dollars a tree. There is no doubt that he gives his orchard intelligent management and has not grown poor in taking care of it.

The Chicago *Tribune* is of the opinion that the prices of fruit will never be low again in this country. The facilities of transportation are so abundant and the foreign demand for evaporated fruit so constant and increasing that fruit-growing in the United States may be considered established as a paying business "while grass grows and water runs." Thus the production of standard fruit is an increasing business, and not only seedsmen and nurserymen are profiting from it, but those who give most attention to orchards, vineyards, berry gardens, etc., find their interests rapidly on the increase. Our railroads carry fruits and their products hundreds of miles, and render possible the cultivation of flourishing orchards on hitherto isolated hills which were abandoned to the wilderness. Dried fruit is wanted in most foreign countries. Canned fruit is carried from our great seaports to "the end of the earth," and profitably sold. Many of the European peasants use our jams instead of butter on their bread. Dehydrated or evaporated fruit, better than all other kinds, is of general acceptance wherever offered, and valued equally with the fresh products. Within the last ten years the amount of raw fruit brought into Eng-

land from the United States is something astonishing. In 1871 there were but 56,441 bushels, valued at \$40,604; but in 1882 there were 1,065,675 received in Great Britain from this country, worth £387,190 or \$1,881,734.40. The outlook for the American fruit grower is most favorable, and those of the rising generation who have a fancy for the business may enter upon it with confidence that their enlightened efforts will be crowned with success.

CONTRIBUTIONS.

TAXPAYING.

BROOKVILLE, O., Nov. 10th, 1884.

EDITOR, FARMER.—Dear Sir: Taxpaying will soon be in order here, and is certain to be so with you before long, as I presume you pay taxes semi-annually as we do. It is said that taxes and death are the only two things that we are sure of in this world. The law of both is inexorable. In view of this it is well enough for farmers to study the philosophy of taxation. It is a common thing for farmers to call the tax they pay a rent. The payment of this tax can only be paid by farmers being very industrious and economical. As a general thing the burden of taxation rests upon the farmers. This burden would not be so heavy if it was that of the exemptions from taxation. All property should be taxed alike; not exempting church property. To those who think that the churches are the embodiment of most of the morality doubtless think that they should be exempted from taxation on that account; but then there are scientists in the country who say, that the development of morals depends upon the evolution of the natural sciences. If that is so, then, on the principle that churches are exempted, so might scientific schools be. By the Government selling bonds free of taxation the farmers tax is increased. A good deal of the capital of the country is invested in these bonds. If it was not in these bonds it would be taxed. By selling these kind of bonds the taxpayer is impoverished and the Government enriched. I think it would be better for us if the people were enriched, even if the Government had to be poor. In the matter of indirect taxes the farmers' tax is also increased. It is now axiomatic that the consumer pays the indirect tax or tariff if you please. The farmer is a consumer to a large extent. Amid, all this noise, about "free trade and protection," nothing is said about protecting the farmer. However, he don't ask it, he don't ask that others should be made poor, that he might be made rich. The farmer can't afford to have his taxes increased, that other property may be exempted. It is a usurpation of legislative power to pass laws by which one class of property is exempted from taxation to the detriment of a class of taxpayers who have no interest in the property exempted.

The State Board of Agriculture of this State are now arranging to have farmers' institutes, in most or all the counties in the State during the coming winter. At the last Farmer's Club meeting of this county (Montgomery) there were present about 300, mostly

SELECTIONS.

RAISING SMALL FRUITS.

"The frost and the drouth of the present season may lead some of us who are engaged in small fruit culture to look on the dark side, and to feel that we had more to contend with than any other class; and in view of this state of things perhaps it would be well to recount some of the advantages of our occupation," says Mr. Crawford, in a paper read before Trumbull County Horticultural Society. "By so doing we may possibly find that we have more to encourage than we ever before thought of, even when things were most prosperous. It is natural for us to magnify our difficulties and drawbacks, and forget our advantages. Let us now reverse this order, and for the time being put aside all our discouragements, and consider some of the reasons why we should congratulate ourselves that we are fruit growers.

"It is a business that benefits all classes and injures none. It is almost the only business in which a poor man can engage and be his own employer. Fruit growers are comparatively independent; they are not liable to be thrown out of employment. If sickness hinders for a time, their crops do not cease growing. If friends come to visit, they can take a little time without having to give an account of it, or deduct the price from the few dollars due them at the end of the week or month. It is worth much to a man to be employed at home, to spend his days with his family rather than in some mill or shop or factory. Those who have children may justly consider it a great advantage to be able to employ them during the summer vacation, when so many children are running wild, and laying the foundation of bad habits which cling to them for life.

"Fruit growers have more leisure than most work people. In the winter they can take time to plan for the next season, and get everything ready for work. They can attend important horticultural meetings, doing good and getting good; and just here is a point worth noticing. Fruit growers have no secrets; the proceedings of their meetings are published to the world. They have originated many improved methods, but they do not guard their knowledge with a high board fence and locked gates, least others should profit by it. On the contrary they gladly give to their fellow men the benefits of their thoughts and experiences. They adopt the generous motto 'My light is none the less for lighting my neighbor's,' and act upon it. While they meet more frequently than any other class of working people, they come together for a nobler purpose than to connive to monopolize all the advantages their business may possess. There is no monopoly in this, as in many other pursuits. The man with a single acre, or even a village lot, can engage in small fruit culture, and is quite likely to realize better returns for the amount invested than one with a hundred times as much.

"As fruit growers have a general knowledge of horticulture, they can do more to make home beautiful than any other class in moderate circumstances; and for the same reason they and their families have a more

liberal supply of the good things produced by the soil than other people. Fruit growers are independent; they have neither asked or received any special privileges; no protective tariff, no bounties, no remission of taxes, no favors of any kind have been bestowed on them, and no other industry have been taxed to make theirs profitable. Notwithstanding all this the business has had a wonderful growth, and it never was in a more healthy condition than at the present time. Everyone is interested in it, directly or indirectly, and the number actually engaged in it is amazing. It is easy to see that, large as the business is, it will for several reasons go on increasing. The demand is increasing, and the supply so perishable that the market cannot be overstocked for any length of time, however many engage in it. But little capital is required to commence the business. It is not necessary to buy the land, and if it were, a little is sufficient. No expensive implements are needed, and the returns come so speedily that the capital invested does not be idle long. This is very different from being in debt half a life-time for a farm and the tools and stock absolutely necessary to make it profitable.

"Fruit growing does not require a great outlay of physical strength, as there is but little hard work connected with it; and for this reason it is a suitable occupation for those who are not able to engage in farming, market gardening, or any employment which involves much hard work. Old men, invalids and children may spend their little strength in fruit growing, and be successful. It is pre-eminently a business for women. There is scarcely any other work in which they can engage with as good a prospect of making money. It requires no great amount of time and study to prepare for it, and after getting established in it one is not liable to receive from some captious employer an invitation to step down and out. Ladies are our most successful florists, and they can do equally well raising small fruits.

"But though small fruit culture offers so many inducements to those who meditate embarking in it, it would be unwise for anyone to engage in it on a large scale without some practical knowledge of the work, no matter how fine and well digested his theories may be.

"Small fruit plants are set out for a special work—that is to send their roots through every inch of the soil in search of plant food, and, having found it, to change it into fruit. Our part is to prepare the soil, set out the plants and see that they have the best possible opportunity to do their work. Last of all we secure the crop. Plant food, to be available, must be dissolved in water, and within reach of roots. For this reason we pulverize the soil to a good depth and endeavor to keep it moist, so that the roots may readily extend in every direction. That the plant may work to the best possible advantage, the soil should contain an abundance of food for it. To provide this food we enrich the soil. Plants or animals may live with very little nourishment just enough to prevent their drying, but they are kept at a loss to the owner. Who would think of employing a man and keeping him idle most of the time for want of proper food and materials? When you hire a bricklayer

at \$4 per day you employ a cheaper man to carry the brick and mortar. Of course the bricklayer could do it just as well, but you do not want his valuable time spent in that way. So when you employ a strawberry plant to make fruit you should see that the raw material is put within its reach. Spending valuable time and labor in cultivating poor land is one of the most serious mistakes ever made by tillers of the soil. After preparing the soil and setting out the plants we must see that they are kept growing without hindrance of any kind. All our small fruits, except the grape, do best in a comparatively cool moist soil, and in a situation that is somewhat sheltered and not exposed to the full glare of the sun. Plants are hindered in their growth in various ways as by weeds, drouth, and want of air at the roots. Allowing weeds to grow among our plants to rob them of food and moisture, is almost as unwise as cultivating poor soil. One would scarcely expect a manufacturer to erect a building, fill it with tools and material, hire his employes, and then invite all the loafers in the community to come and use his material for their own selfish ends, and yet this would be just about as wise as allowing weeds in growing crops. While we cannot produce rain at will, we can to a great extent, by frequent stirring of the surface and by mulching, prevent the evaporation of moisture from the soil; this same stirring keeps the surface loose and admits air to the roots. After having grown the crops, final success depends very much on the manner in which it is picked and marketed. This is especially true of strawberries, which are often sent to market with such an unattractive appearance that they yield no profits to the grower, and very little pleasure to the consumer. Small fruits should be carefully picked, and all damaged or worthless berries left out. They should be sent to market in clean baskets or boxes, and each of these should contain berries of a uniform size from top to bottom.

"No part of fruit culture is of more importance than a knowledge of varieties, and this must be learned, in part, by each one for himself. A person with little or no experience should commence in a small way, and confine himself mainly to such varieties as are known to do well in all soils and localities. If every one would 'prove all things and hold fast that which is good' nurserymen would receive fewer curses and fruit growers more money. As a rule, every one should raise his own plants, except new varieties which he wishes to test. In this way he is sure to have plants fresh, well grown and true to name, besides saving heavy express charges.

"When we consider the healthfulness of the work, that it is carried on in the open air, that it furnishes an agreeable exercise for both mind and body, and that success is in exact proportion to brain work invested, it is not strange that so many engage in it."

— MATHEW CRAWFORD,

A CHAPTER ON FLIES.

(Continued from page 153.)

We now come to the *Bot-flies* (*Estridae*), which are among the most extraordinary, in their habits, of all insects. The history of the bot-flies is in brief thus: The adult two-winged fly lays its eggs on the exterior of the

animal to be infested. They are conveyed into the interior of the host, where they hatch, and the worm or maggot lives by sucking in the purulent matter, caused by the irritation set up by its presence, in its host; or else the worm itself, after hatching, bores under the skin. When fully grown, it quits the body and finishes its transformations to the fly state under ground. Many quadrupeds, from mice, squirrels and rabbits, up to the ox, horse, and even the rhinoceros, suffer from their attacks, while man himself is not exempt. The body of the adult fly is stout and hairy, and it is easily recognized by having the opening of the mouth very small, the mouth-parts being very rudimentary. The larvae are, in general, thick, fleshy, footless grubs, consisting of eleven segments, exclusive of the head, which are covered with rows of spines and tubercles, by which they move about within the body, thus irritating the animals in which they take up their abode. The breathing pores (stigmata) open in a scaly plate at the posterior end of the body. The mouth-parts (mandibles, &c.) of the subcutaneous larvae consist of flesh tubercles, while in those species which live in the stomachs and frontal sinuses of their host, they are armed with horny hooks. The larvae attain their full size after moulting twice. Just before assuming the pupa state, the larva leaves its peculiar dwelling-place, descends into the ground and there becomes a pupa, though retaining its larval skin, which serves as a protection to it, whence it is called a "puparium."

Several well-authenticated instances are on record of a species of bot-fly inhabiting the body of man, in Central and South America, producing painful tumors under the skin of the arm, legs and abdomen. It is still under dispute whether this human bot-fly is a true or accidental parasite, the more probable opinion being that its proper host is the monkey, or dog.

The Apple-midge frequently does great mischief to apples after they are gathered. F. G. Sanborn states that nine-tenths of the apple crop in Wrentham, Mass., was destroyed by a fly supposed to be the *Molobrus mali*, or Apple-midge, described by Dr. Fitch. "The eggs were supposed to have been laid in fresh apples, in the holes made by the Coddling-moth (*Carpocapsa pomonella*), whence the larva penetrated into all parts of the apple, working small cylindrical burrows about one-sixteenth of an inch in diameter." W. C. Fish has also sent me, from Sandwich, Mass., specimens of another kind of apple worm, which he writes me has been very common this year in Barnstable county. "It attacks mostly the earlier varieties, seeming to have a particular fondness for the old fashioned summer, or High-top Sweet. The larva enter the apple usually where it has been bored by the Apple-worm (*Carpocapsa*), not uncommonly through the crescent-like puncture of the curculionid, and sometimes through the calyx, when it has not been troubled by other insects. Many of them arrive at maturity in August, and the fly soon appears, and successive generations of the maggots follow until cold weather. I have frequently found the pupae in the bottom of barrels in a cellar in the winter, and the flies appear in the spring.

In the early apples, the larvæ work about in every direction. If there are several in an apple, they make it unfit for use. Apples that appear perfectly sound when taken from the tree, will sometimes, if kept, be all alive with them in a few weeks." Baron Osten Sacken informs me that it is a *Drosophila*, "the species of which live in putrescent vegetable matter, especially fruits."

The allied fly is the parent of the cheese maggot. The fly itself, *Piophilæ casci*, is black, with metallic green reflection, and the legs are dark and paler at the knee-joints, the middle and hind pair of tarsi being dark honey yellow. The Wine-fly is also a *Piophilæ*, and lives the life of a perpetual toper in old wine casks, and partially emptied beer, cider, and wine bottles, where, with its puparium, it may be found floating dead in its favorite beverage.

We now come to the more degraded forms of Diptera which live parasitically on various animals. We figure, from a specimen in the Museum of the Peabody Academy, the Bird-tick, *Oreithomyia*, which lives upon the Great Horned Owl. Its body is much flattened, adapted for its life under the feathers, where it gorges itself with the blood of its host.

In the wingless Sheep-tick *Melophagus ovinus*, the body is wingless and very hairy, and the proboscis is very long. The young are developed within the body of the parent, until they attain the pupa state, when she deposits the puparium, which is nearly half as large as her abdomen. Other genera are parasitic on bats, among them are the singular spider-like Bat-tick, *Nycteribia*, which have small bodies and enormous legs, and are either blind, or provided with four simple eyes. They are of small size, being only a line or two in length. Such degraded forms of Diptera are the connecting links between the true six-footed insects and the order of Arachnids (spiders, mites, ticks, &c.)

The Flea is also a wingless fly, and is probably, as has been suggested by an eminent entomologist, as Baron Osten Sacken informs us, a degraded genus of the family to which *Mycetobia* belongs. Its transformations are very unlike those of the fly-ticks, and agree closely with the early stages of *Mycetophila*, one of the Tipulid family.

One of the most serious insect torments of the tropics of America is the *Sarcophaga penetrans*, called by the natives the Jigger, Chigoe, Bicho, Chigue, or Pique. The female, during the dry season, bores into the feet of the natives, the operation requiring but a quarter of an hour, usually penetrating under the nails, and lives there until her body becomes distended with eggs, the hind-body swelling out to the size of a pea; her presence often causes distressing sores. The Chigoe lays about sixty eggs, depositing them in a sort of sac on each side of the external opening of the oviduct. The young develop and feed upon the swollen body of the parent flea until they mature, when they leave the body of their host and escape to the ground. The best preventive is cleanliness and the constant wearing of shoes or slippers when in the house, and of boots when out of doors.—*American Naturalist*.

RASPBERRY CULTURE.

Raspberries are attracting more attention at this particular time than ever before.

Raspberries have always been appreciated more or less on account of filling in the place nicely between strawberries and blackberries. It is a fruit much admired by many, though never so popular as the strawberry. Up to within a few years there were but few varieties. The Red Antwerp, American, or common Black Cap, and Brinckle's Orange, were popular as far back as I can recollect. As much improvement has been made in late years in the raspberry as in any other fruit. We are now not confined to three or four varieties, but varieties of distinguished merit can be counted by the dozens. I have grown the raspberry for market now twenty-six years, but never to the same extent as at present. I now plant largely of them because I find their culture profitable. Any of you can do as well if you have suitable soil, varieties, and understand the proper mode of culture.

To grow raspberries successfully, you must select good soil, well underdrained; let it be clay loam or sandy soil, but prefer upland clay loam. I have known them to do admirably in almost any soil, provided it is rich and not wet. Plow as you would for any other crop, the deeper the better if your soil admits of it. Harrow well; plow out furrows six or seven feet apart, and plant in said rows three feet apart—a partial shade I find to advantage. My patches that do best are in an old orchard.

Black raspberries are usually planted shallow, an inch or two deep. If it is your intention to tie up your canes that is deep enough, but if you wish them self-supporting you must plant them so that by after culture they will be at least three to four inches deep, otherwise they will not be self-supporting. By so planting and pinching back, as hereafter described, I never have trouble about my canes blowing, or falling down by the weight of fruit.

The first year's growth I pinched back when eight to ten inches long. The second year and every year thereafter, I pinched back the tips of the growing shoots when from twenty inches to two feet high. They then cease to grow in height, but throw out laterals in all directions, balancing and supporting the main stem effectually. The following spring, early in the season, I cut back all laterals with hand pruning shears, leaving them from one foot to two feet long, according to the number and strength of canes in the hill. This operation is quickly done and inexpensive. After pruning, I gather and carry out and burn all the debris between the rows. I then cultivate, first with a double shovel or barshar plow, then in time with a cultivator, as often as it is necessary to keep them clean, free from grass and weeds, up to August, after which I let them rest. It is not a good plan to cultivate too late in the season; you thereby cause them to grow too late to mature the wood sufficiently to withstand the cold of the winter. I plow and cultivate them three or four inches deep. You need have no fear of injuring the roots by so cultivating.

I plant the same distance as black three by six feet. This takes 2,420 plants to the acre. I do not cut back the canes of red varieties (as I do the black) until the following spring, except strong growing varieties like the

Turner, Shaffer's Colossal and others of like character. These I cut back during the season of growth, when about three feet high; otherwise they may grow to seven or eight feet, as I have seen them grow, necessitating the cutting away of too much wood in the spring. Treat suckers between the rows as you would weeds, unless you want plants; cut them out when young and tender. Sprouts, or suckers, are a great annoyance in growing red raspberries. If taken in time, they need scarce no care. Red raspberries, to do their best, must be kept in hills, same as black. This can be done by cutting away with a sharp hoe all sprouts, when young, between the hills in the rows, allowing from four to eight canes to the hill. Many growers allow them to grow all along the rows, though not too thick.

There is a difference of opinion among raspberry growers as to the best way to cut away the old or bearing canes. I have tried both methods, namely, leaving the old canes all winter and cutting them in spring, or cutting them as soon as I find time after fruiting, carrying out and burning them. I am satisfied by adopting the latter method, I destroy many noxious insects, worms in various stages of life, that would live over winter were I to practice the other system. It is argued that the leaf of the old cane has much to do in the growth of the canes that are to bear fruit the following season. I take no stock in that opinion. If your plants are in good condition there will be leaf enough on the young canes to mature them without the assistance of the leaf of the old canes, that have already performed their functions by maturing the crop of berries just gathered. Then, again, the old canes are certainly not ornamental. Having an eye for the beautiful as well as the useful, I get rid of them as soon as I can after the fruit has been gathered.

For a long time I advocated and practiced the tying up of canes, first to stakes, then to an iron wire stretching along the rows fastened to posts every 25 to 30 feet. Either of the systems I found expensive, and slow work. It did well enough when I had but an acre or two, and did not know any better. But when I had many acres I found that it was not the thing to do, especially so when I learned that stakes and wire were of no use, I might say entirely unnecessary. I cannot help but sympathize with those who are so far behind the times as to follow that system now. By adopting the pinching back process, at the proper time, I save the expense of stakes, or posts and wire, and the time necessary to tie the canes to them, and raise as many bushels of as nice berries per acre.

EXPERIMENTAL PEAR ORCHARD.

I herewith give the record of an experimental pear orchard in which over fifty of the most popular and highly recommended varieties were planted says: "My father started this orchard about thirty years ago, and there have been occasional additions made down to the present time. The character of the soil is a fine rich sandy loam. Most of these varieties are still advertised and recommended in nursery catalogues. I give the result of

experience with them in Eastern Bucks county, thirty miles north of Philadelphia, for the benefit of the readers.

The varieties which possess superior merit and have been very profitable, can be counted on the fingers, I would name *Beurre Giffard*, *Buffum*, *Bartlett*, *Sheldon* and *Rutter*, as being the most profitable. And as the second five, *Early Catherine*, *Doyenne D'Ete*, *Abbott*, *Sekle*, *Natural* or *Choke*.

I have always found a good market for fruit near home, in Trenton, N. J., and sell whatever grows on the trees: large and small, good, fair and indifferent. Where fruit can be disposed of in this way, without much expense for the freight, commission, etc., almost any kind of fruit trees (if not totally barren) will be profitable; that is, they will more than pay for the land which they occupy, but the pears which are really valuable for the majority of the planters are very few.

The first and most essential requisite for a tree to be valuable, is productiveness; second size and appearance of fruit; third, time of ripening; very early and very late fruit bringing the highest price; fourth, quality of fruit. Fine looking fruit will command a fair price, even in a glutted market, regardless of its quality, when small or unattractive stock although of the finest flavor, will go begging for a market or not.

Nearly every variety named in this list has been affected, more or less, with blight at some period. Those which have suffered least from it are *Beurre Giffard*, *Buffum*, *Sheldon*, *Rutter*, *Chinese Sand* and *natural* fruit.

Those which have suffered most are *Beurre D'Anjou*, *Lawrence* and *Vicar* of *Wakefield*.

The only remedy that I know for blight is to remove the injured branch and burn it; keep the tree growing vigorously and let it repair the loss. If a tree dies plant another, but don't grub out an old pear root while there is life in it. It will send up a sucker that will soon commence bearing or form an excellent stock for grafting.

Pear trees seldom need trimming after they get to bearing, except cutting out dead wood, if there is any. *Beurre Giffard* and *Manning's Elizabeth*, two of the best pears and some others, are feeble growers while young, requiring several years to come into bearing; but are vigorous and soon become productive if worked into the top of a thrifty large tree.

I believe the best condition for a pear orchard is to keep the land in sod and never plow it, but not allow the grass to grow within two or three feet of the trunks of the trees; keep the circle mulched with manure, leaves or stones. Manure the land liberally once in three or four years. Allow hogs to root in the orchard and devour all the defective fruit. *Sekle* pears especially are large, fairer, and higher colored when grown in sod than in cultivated land.—*Farm Journal*.

GRAPE CULTURE.

The best vines are those grown from cuttings having two eyes, in which a single system of roots radiate from the lower eye like the spokes of a wheel, and the vine grows out of the top bud. One-year old vines are to be preferred in all cases, if first-class, even if two years old, root pruned and transplanted vines should be offered at the same price.

In planting vines, the single tier of roots should be set as low in the ground as may be and keep the upper node, from which the vine has started, out of the ground, so that new roots will not grow from it. Unless this precaution is taken, a new upper tier of roots, thus encouraged to grow, will, after a time, usurp and displace the others, and the action of frost in clayey soil will gradually, and sometimes in a single winter, throw the vine out of ground and expose these upper roots in an injurious way, and this condition remains permanent. The best time of the year is that which occurs first, always promising that the soil should be mellow and friable, and if in autumn, a shoveful of loam should be used so as to completely bury the two or three buds only that are left upon the vine above the surface. The earlier in autumn or spring that the work is done, the better, providing the conditions are as stated.

The distance at which vines should be set will depend somewhat upon the strength of the soil and the mode of training adopted. If in all respects as above advised, the best distance is believed to be primarily, in rows eight feet apart with the vines six feet apart in the rows which perfectly run north and south. It will be a matter of great convenience to have the rows consist of but twenty-five vines, thus occupying 144 feet in length; then by omitting one vine, a space of twelve feet will be left for access between two vineyards. If circumstances favor, or rather if they seem to require, as the vines get age and strength, each alternate vine, including the two end ones in each row, may be removed, thus leaving twelve vines in each that will stand eight by twelve feet apart.

Almost any hoed crop may be grown in the vineyard for one or two years if an equivalent amount of fertilization be given, but after this time grape vines only. Many and various are the implements that have been tried for cultivation and discarded. The plow is here inadmissible. Cultivation should be shallow, perhaps two inches is ample, and this should be done in a way that will not disturb the larger roots, the great body of which lie from three to six inches deep. The last summer's experience has proved the one-horse "Acme" harrow to be exactly the thing. It is an implement that disturbs the soil from one to five inches deep, at the will of the driver, or in hard ground the rider, and never cuts off the larger roots even if lying at the surface. Cultivation should begin each year as soon as the ground will pulverize in the spring and be renewed after every packing rain, or in the absence of rain, before a crop of weeds has time to show the third leaf.—*Farm Journal*.

SETTING OUT FRUIT IN THE FALL.

One of the principal advantages in setting out fruit in the fall is that there is more leisure and the work can be done better without interfering too much with other work. Spring work is always pressing, and it is often difficult to get the soil in a suitable condition and find time to properly set out the trees. You cannot expect the best results with fruit of any kind unless you are willing to take considerable pains to properly take care of it.

After having selected the soil or plot it should be well plowed in the fall; plow deep

and well; if the soil is rich no manure is necessary, but if it is not it will be economy to make it so from the start by giving a good application of well rotted stable manure, and work thoroughly into the soil. I am aware that the old custom was to dig a hole for the tree and put the manure in this, but experience has shown that the feeding roots soon get beyond this and fail to receive as much benefit as they should. Surface manure well worked into the soil furnishes the food in the best condition for the largest number of feeding roots to reach and be benefited by it. Make out some time ahead a list of what you want; get good varieties, and do not let a mistaken notion of economy induce you to select poor varieties simply because they cost a few cents less on the tree. Good trees of good varieties cannot be raised for nothing and it always pays to give a little more and get the best.

Secure a selection that will give you fruit all the year around. This can be done if you are careful in selecting your varieties of fruit. There are so many claimants for the best, and such close competition among dealers, that it would hardly be proper in a newspaper article to give a list of what we might consider the best; then again, what we might consider the best in this section and in one kind of soil, would not pass as among the best in another section on a different soil. Hence in securing a variety it is best to have some knowledge of what has done the best in your immediate neighborhood, if possible.

Do not set your trees too thick—thirty feet each way is plenty close for apples, and sixteen by twenty for peaches, cherries, crabs, apricots and quinces. It does not pay to crowd too closely. In setting out take some pains to have the trees in as straight a line as possible. The best device to aid in doing this way is the easiest way is to have a board six inches wide, one inch thick and four feet long. Cut a notch in the center, and equal distance from this in each end bore a good sized hole; have two pins that will fit these holes, easily reach into the ground deep enough to hold it steady. Mark off the places where the trees are to stand, put the notch exactly where the tree is to stand, fasten with one pin and turn the plank around out of the way, dig the hole the proper depth and put in the tree, bring back the plank and fasten in the original holes, put the tree in the notch and you will make no mistake or get the tree out of line.

In setting out the trees do not set too deep. There is as much danger of smothering a tree by setting too deep as of injuring the roots by setting too shallow. My plan is to set in as deep as the tree stood in the nursery. If the roots are in any way dry wet them thoroughly before setting out; take pains to spread out the roots as evenly as possible. In filling up the hole see that the space between the roots is well filled with soil; have the soil rather hollowing about the stem so as to retain moisture. Later on, before severe cold weather comes on, mulch well around the roots. I have also found that it pays, when setting out trees in the fall, to wrap well with old rags or tarred paper too keep off the rabbits and mice; they seem to especially like the bark of the young, newly-set trees, and by

doing this work ahead much vexation may be saved. Cut back the tops of the trees well before setting out. To many this looks like considerable work, but if it is it will prove profitable work, far more so than to perform the work carelessly and leave the trees and your work, besides a year's loss in obtaining a supply of fruit; all things considered, it pays to take pains to do the work well at the start.—*J. N. Shepard in City and Country.*

A QUERIST IN A FRUIT GARDEN.

How can I best fill out vacancies in raspberry and strawberry rows caused by plants dying from the effects of drouth?

With strawberries permit the plants that survive to make new plants, and take up the new plants with a mass of earth about the roots in September, and plant where vacancies occur. Or, better, train the runners into quart baskets or small pots, and transplant from these when well rooted. With black raspberries, layer the young canes as soon as long enough, and transplant these young plants next spring where vacancies occur, after the tips of the young plants have grown an inch or two, leaving earth about the roots. With red raspberries fill vacancies now with green sucker plants that have sprung up about old plants about your place. Do not order green plants as they will not often endure shipment. Remove the leaves on planting.

Is it necessary to remove blossoms from newly set strawberries?

If set early, and the weather continues moist, the plants may come through in good condition, bearing fruit the first season. But if a drouth occurs after planting, the plants might perish from the drain upon their vitality in attempting to produce fruit before becoming established. I have known plantations to be saved in such cases by removing every blossom and green berry.

What is the best plan for carrying plants through a drouth?

I never water them. As ordinarily done, watering is detrimental. I mulch each plant with muck or sawdust, or in the field with loose fine earth. Even where the soil in the row has become hard this mulch of fine earth often saves the plants through a long drouth, if the spaces between the rows are cultivated frequently.

When is the best time to head black raspberries and blackberries?

If you wish to grow without stakes (the approved method) pinch off the tips of the young canes as soon as they get about two feet high. If you wait until the canes are four or five feet high and then cut off a foot or more, you check growth and lose some of the best buds. I cut back the bearing canes of red raspberries, and shortening in side branches early in the spring, securing more and better fruit than if the entire canes were left on and giving better opportunity for the pickers to move about without breaking off the ripe berries.

Is summer pruning of the grape advisable?

Grape growers thin grapes by pulling off surplus buds and shoots and shortening-in canes, allowing but three or four bunches to each cane, when the trellis is well covered. If left to itself the grapevine sets twice as many clusters as it can bring to perfection. If a large part of the clusters are removed early

(those remaining will be much larger, will ripen earlier and be of better quality and the vitality of the vine be perpetuated.

How long is it profitable to allow strawberries, raspberries, etc., to grow on the same soil without renewing?

Some varieties run out much sooner than others. Ordinarily three years with strawberries, five with blackberries and currants is the extent, though many are profitable much longer, and strawberries might continue an existence for a lifetime. The better the culture, and the richer and better drained the soil, the longer the plant endures. Where land is very high-priced strawberries are only allowed to remain long enough to produce one crop. Where land is cheaper, there is no limit to the ingenuity that may be applied to keeping the beds renewed and productive year after year, keeping in view the fact that the young plants possess the most vigor.

Are large fruits as profitable as small fruits?

As a rule they are not. Our small fruits seldom fail to give a crop, while the pears, apples, peaches and plums often have their barren years. But the trees require less attention than plants and vines, and we do not feel the loss of a crop so seriously from them. While engaged in the business one should desire to grow the large fruits as well as the small.

Does fancy fruit growing pay?

No. If growing fruit as a business you must learn the cheapest method of producing it. It pays to fertilize well, to give good culture, to offer in attractive style in market, and to raise the best varieties, but there is a limit to high culture, and to everything connected with the business. Every man must be his own judge as to when he has reached this limit. Some men can grow fruit at half the cost of others. Some men can manufacture shoes for less than others. Good common sense carries a man a long way toward success in this country.—*Charles A. Green in N. Y. Tribune.*

GOOD OCTOBER CROPS.

The department of agriculture at Washington, reports that the October returns of corn average higher for condition than in the past five years, but not so high as in any of the remarkable corn years from 1875 to 1879 inclusive. The general average is 93, which is very nearly an average of any series of ten years, and indicates about twenty-six bushels per acre on a breadth approximating 70,000,000 acres. The region between the Mississippi and the Rocky Mountain slopes again presents the highest figures, which in every state rise a little above the normal standard of full condition. No state east of the Mississippi returns condition as high as 100. The lowest figures are 73 in West Virginia; Ohio, 74; Louisiana, 74; Texas, 80; South Carolina, 83. The reduction was caused by drouth. There is complaint of drouth in the Ohio Valley and in the Atlantic and Gulf states, but not sufficiently severe to reduce seriously the yield. The early planted is everywhere matured. Late plantings in the Southern states have suffered for want of summer rains, and will be light and not well filled. Very little injury has been done by frosts. There was frost in Vermont on the 25th of August,

and in several border states about the middle of September, with slight injury to late corn. Damage by chinch bugs and other insects has been slight.

The wheat crop will exceed that of last year by about 100,000,000 bushels. Thrashing is slow and late, with results thus far confirming the indications of former reports. The yield per acre will average about 13½ bushels. The quality of the present wheat crop is generally very good, especially in the Eastern and Middle States, in the western slope of the Alleghenies, Michigan, Wisconsin and Minnesota. Some depreciation in quality is noted in Indiana, Illinois, Iowa, Missouri and Kansas. The average for the entire breadst is 96.

The indicated yield of rye is about 12 bushels per acre. The quality is superior.

The yield of oats is a little above average, yielding about 27 bushels per acre and making a crop approximating 570,000,000 bushels of good quality.

The barley crop make a yield of nearly 23 bushels per acre and a product exceeding 50,000,000 bushels of average quality.

The condition of buckwheat averages 87, indicating a crop slightly under an average.

The condition of the potato crop is represented by 88, which is five points lower than in October of last year. It is two points lower than in 1879 and 1882, and the same as in 1880.

The October returns of cotton indicate a reduction of nearly 8 points in the average condition from 82.5 to 74.7, as the result of a continued drouth in arresting development and destroying vitality of the plants. The prospect of a top crop is reduced to a minimum. Drouth has been general and its effect manifest in ever State. Of ten successive crops only two have averaged lower condition in October. These were 1881 and 1883, when the averages were 66 and 68 respectively. The average was 68 in the great crop year of 1882. The State averages are as follows: Virginia, 81; North Carolina, 79; South Carolina, 80; Georgia, 74; Florida, 84; Alabama, 74; Mississippi, 76; Louisiana, 77; Texas, 62; Arkansas, 76, and Tennessee, 85. The returns of local estimates of yield per acre in fractions of bales indicate an average rate of yield of 36-100 of bale per acre.

BUILDING FARM HOUSES.

First.—The site must be chosen where the cellar will be perfectly dry or can be made so by easy and thorough drainage; where the house can be sheltered from the northwest winds and be open to the east and south, and where the surface water will flow away in all directions, leaving the foundations quite free.

Second.—The water supply must be ample and perfectly pure, and be brought so close to the house as to be easily reached.

Third.—The necessary outbuildings should be located conveniently for access, but with perfect safety as regards drainage, that the water supply shall not be contaminated.

Fourth.—The kitchen should be the pivotal point of the establishment, around which the rest of the house may be grouped with regard to convenience and comfort. It should be large, well lighted, face the east, have a high ceiling and be provided with a range, water-back with boiler, a sink provided

with a drain, and a pump from the well, or by means of a two-way pipe this pump should be connected with the well and the cistern both. It should have a large closet and a store room large enough to hold a full supply of groceries for at least half a year.

Fifth.—The cellar should not be more than five feet below the ground and be fully three feet above it, having plenty of windows to let in light and air when necessary. There should be no wood about the cellar; the doors should be cemented and the walls and piers made of brick.

Sixth.—The main living room should be on the south side of the house and have large bay-windows, through which the blessed sun may come in and bring life and health and happiness all the day. Never mind if the carpets fade or the furniture covers are bleached white; the mother's cheeks will have the roses and the children will be brown and hearty.

Seventh.—There should be a hall through the house, running from west to east, so that with both doors open a stream of pure, fresh air, laden with the sweet scent of the roses, may pour through the house.

The parlor may be on the west and north, and here the good, careful housewife may cherish her bright carpet and her unstained furniture, fearless of the sun's rays, excepting those golden ones which come low, slanting in from the west. A broad veranda may run from the west front around the north corner, providing a cool retreat for summer evenings. The hall should be wide, giving room for broad stairs; and these could have an easy slope, with low broad treads and landings between the floors, so that the old folks may go up and down with ease and comfort to the now stiffened limbs and wearied muscles. The living room should have an open fire-place, and no account should be made of the dust of it as compared with its cheer and comfort. Space forbids more than a word or two as to the upper rooms, but if we can fully appreciate and understand these hints, so far as given, it will not be difficult to arrange these successfully; but one must never forget that abundant fresh air is indispensable to healthful rest, and sleeping rooms should have high ceilings and, if possible, every one of them an open fire-place and large windows.

SENDING PLANTS BY MAIL.

So much progress has been made by nurserymen and florists that now it is comparatively an easy matter to send plants any reasonable distance by mail with perfect safety. Of course, such plants require careful packing; not only must they be kept moist, but they must be packed so as to insure them against damage in handling while in the mail. Mail pouches do not always receive the kindest treatment in the world, and unless packages are well packed serious damage will result. Testing as I do a large number of varieties, I receive a large number of packages through the mail, and uniformly have received them in good condition. The first essential in having good plants live is to keep the roots damp and uninjured. For this purpose moss is used; over this was generally placed two or three layers of oiled paper, and then over this stout wrapping paper, each wrapper being well tied on, and in this way

packages came through long distances without injury. I had occasion to send to Chambersburg, Pa., for a collection of roses; they came as nice and fresh as though they were just out of the ground. They were packed first in damp moss, then a layer of oiled paper; the package in this condition was put in a stout past-board tube and then wrapped with wrapping-paper, on which was the address. These must have been three or four days on the road, giving them every advantage of close connection, and yet were in first-class condition, the leaves fresh and green. They were set out and grew right along. Many are deterred from purchasing plants from the fear of their not being able to come long distances through the mail without injury, but my experience is that with the present plan and knowledge of doing the work of packing this risk is reduced to a minimum. At my rate, so far as my experience is concerned, I have always had good success with such plants if proper care were given them after they were received.—N. J. Shepherd, in *German-ton Telegraph*.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

In consequence of the absence of a quorum no formal meeting was held on the first Monday in the month. Its near approach to the Presidential election may have been the cause. Perhaps it might be wise to place such contingencies under the holiday provision hereafter.

FULTON FARMERS' CLUB.

The Fulton Farmers' Club held its October meeting at the residence of Grace A. King, of Fulton township, its members all present except E. H. Haines. There were also several visitors present by invitation.

Joel King exhibited Golden Russian and Key's Prolific wheat, and a sample of corn; C. C. Cauffman, three varieties of apples for name, also Catawba and Clinton grapes, and a variety for name; Marshall Nesbit, Smith's cider and Blockley Pippin apples; Melissa Gregg, Hubbardston's Non Such and Fallowater apples; Phoebe A. King, a mitten curiously knit by herself and looking as if it would be very comfortable on a cold day.

L. S. Gregg asked if it was a good plan to roll the ground after it had been seeded for wheat.

Marshall Nesbit did not think it was. Day Wood said rolling was of no advantage if the ground was not very dry.

Montiflon Brown thought injurious if a hard rain should happen about the time. He liked to have the ground level for the machine, but for wheat it was of no advantage. He rolled his wheat last spring, which he preferred to rolling in the fall.

C. C. Cauffman would rather roll before the drill. He thought that clover seed took better if the ground was left unrolled.

Joseph R. Blackburn had some experience. He once hurried to get his wheat rolled before a rain came up, and when the rain came it proved to be a very heavy one, the ground baked after it and the wheat did not come up well.

William King asked if we could afford to raise Golden Russian and Foltz wheat, when they would not bring so much as red wheat by five cents per bushel.

Day Wood: It takes a very good red wheat to grade No. 1. Foltz will grade with most red wheat, and besides it will yield enough to make up the difference in price.

M. Nesbit thought he had better sow red wheat.

Lindley King preferred Foltz; it made a better yield.

Montiflon Brown raised red wheat to eat and Foltz to sell.

Montiflon Brown: What it is to be done with the English sparrows?

Marshall Nesbit would kill them.

Lindley King considered them a nuisance, but did not know how anything could be done to abate it.

S. L. Gregg thought we had better cage them and send them back.

Montiflon Brown thought that after other birds had left for the winter they might be poisoned.

Elmira Wool asked whether it was better to sell pork when butchered or salt it and sell the cured meat.

S. L. Gregg: It is better to sell before salting. It requires a great deal of care and labor salt it properly—besides the offal, which is difficult to dispose of to advantage.

Afternoon Session.

The minutes of the last meeting held at the place were read and criticisms on the farm management were called for.

S. L. Gregg thought that things about the place were looking quite as well or rather better than common.

Montiflon Brown had noticed some very fine hogs, and other things are looking well.

C. C. Cauffman spoke of a very substantial new fence along the road.

Literary Exercises.

Grace A. King read an article entitled "Warning Mothers."

R. D. King read "Forgive and Forget."

Adjourned to meet at Joseph R. Blackburn's, on November 8.

LINNEÆAN SOCIETY.

The Linneæan Society met in their museum rooms on Saturday, October 25th, 1884, at 2½ o'clock in the afternoon. The minutes of the previous meeting were read and approved, roll called, and dues collected. The President, Hon. J. P. Wickersham, occupied the chair.

The donations to the Museum were examined and found to consist of the following:

A bottle of different species, or young and adult hair worms, donated by Mr. David Gibson, corner of North Duke and James streets, found in a stream among water cress.

A bottle of white silicious sand, from Minneapolis, Minn., donated by Mr. C. A. Heinich; used by the Flint Glass Company, of that place.

A box of specimens of the hornet (*Vespa macranta*) from Maryland, donated by J. M. Westhafer.

The donations to the Library were as follows:

LANCASTER FARMER for October, 1884. Bulletin of Linneæan Society, September, 1884; Circular of Information, Bureau of Education, Nos. 4 and 5, 1884; 11 Scientific Bulletins, Annual Report for 1884, and Register of the University of California, located at Berkeley, Cal.; Book Worm for October, 1884; Catalogue of Second Hand Books, United States; Patent Office Gazette, Vol. 28, No. 14, and Index to Vol. 28; Vol. 29, Nos. 1, 3; Index of Patentes and Inventors for quarter ending June 30, 1884; Report to Minister of Instruction, France, on the Ashburnham Manuscripts; Report on the Libri Collection, and Observations of American Newspapers on the two collections from Harrison Wright, Secretary Wyoming Historical and Geological Society; a number of prospectuses, etc.

Dr. S. S. Rathbun read the following additional notes on deposits at last meeting: "As an appendix to the remarks on the specimen of *Polyphaga lobata*, I would further state that on the 5th and 6th of September five specimens of *Diaperis Hyalinæ*—a species of *Heterocerous Coleoptera*—were evolved from it; the eggs or larvae of which must have been in it when it was found on the 15th of July. It may also be worth while to state that these beetles only come forth from their burrows at night, being carefully hidden during the day. A peculiar character-

lath of these beetles is—like the notorious curculio—when they are disturbed, they immediately draw in their antennae and feet close to the body and drop down, lying as if they were dead, and you might pick up and dispose of half a dozen or more before any of them would attempt to move. When the fungus arrived in Lancaster, on the 17th of July, I found that a species of *Lygea* or *Dolobolus* (a spider), had possession of it, and he remained there until about the 15th of September, having moulted at least twice and increased a hundred per cent. in size. The semi-putrid odor of the fungus was a special attraction to the flies, and the spider fairly gorged himself with them. He spun no web, but merely occupied a favorable spot on the disk of the fungus and captured the flies in rapid succession, they seeming to have no consciousness of his presence, but fearlessly approached him, indeed running over his feet while he was in the act of devouring his victims."

S. M. Smer read a few notes on the small red seeds with the black eye, often seen in shell work, etc., and stated that they are the seeds of a plant called *Ormosia Coccinea*, which is a native of New Guinea. The seeds in question are very pretty, and they are used by the natives of Guinea as beads and are strung together in necklaces, bracelets, etc. The name of the family of plants is derived from "Orms," a necklace.

Also on the hard, brown shelled fruit, of which our Chinese residents in Lancaster are very fond, and which they receive from China, which is the fruit of the *Nephelium Litchce*, and they are called Lychee nuts by the Chinese. The eatable portion of the nut consists of a kernel somewhat like a raisin in appearance and tastes like Muscatel grapes.

Papers were read on the "Parasites of Insects;" "Sack Worm," and "Saddle Back Moth," which were ordered to be printed in the *FARMER* and *Bulletin*.

J. K. Shirk, M. D., and J. M. Yeagley, M. D., were elected associate members. A vote of thanks was given to the donors to the Museum and Library. The members of the Teachers' Institute were invited to visit the Museum between the hours of 1 and 2 P. M., each day of the session, if they desire to. Mr. Walter P. King will be in attendance and show them around. Bills of \$1.50 for *Bulletin*, and 50 cents for postage were ordered to be paid. A number of letters were received and the Secretary authorized to acknowledge such ones as needed answering; also to have *Bulletin* of October meeting printed.

The Society then adjourned to meet on Saturday, November 29th, 1884, at 2½ o'clock P. M., in the Museum ante-room.

AGRICULTURE.

Experiments in Corn Culture.

Like many other subjects, there can be always something said about experimental corn culture. The following article clipped from an exchange contains many valuable suggestions, and will no doubt be read with interest and profit.

Field experiments are often performed by active farmers to determine the best modes for cultivating crops, but unfortunately they nearly always omit other modes side by side to determine by comparison or contrast the comparative advantages of the best. A farmer thinks he has found an improved way, for instance, in the cultivation and management of his corn crop, and he applies the new treatment to the whole field, instead of trying both modes side by side, and measuring the product of each. We often meet with cultivators who are satisfied that repeated horse-cultivation of their corn crops increases the product, as compared with only one or two thorough dressings; but to what extent this increase has been made, is mere conjecture. Some have placed it by guess as high as twenty bushels or more to the acre, and under the most favorable circumstances this amount is not probably an over estimate. But distinct and accurate facts are wanted, and fortunately they are easily obtained. Let any farmer who has

planted his corn, count off in separated parcels as many rows as he devotes to a row of shocks; they may be counted off in fives or sevens as may be preferred in harvesting the crop. Drive stakes or set other marks so that each set of rows may be kept separate in cultivating. One set of these strips is to be kept constantly mellow by passing the horse cultivator every five days; the others by cultivating or hoeing just often enough to keep the crop tolerably free of weeds. He may, if he chooses, devote one or two spaces to trying the effect of "hilling" the corn as compared with flat culture. A record should be kept of each.

When the time arrives for cutting up the corn and placing it into shocks, all that is requisite is to observe from the record the stakes, the different strips and portions so as to keep them distinctly and separate. When these rows of shocks are separately husked each row is carefully weighed or accurately measured, and the amount noted on the record. Here there will be a lesson, or a piece of practical information, right before the eyes, telling him how much he has gained by the continued mellow cultivation, and how much he has lost by omitting it, and what is the comparative value of hilling. He may also estimate the greater time required for the frequent cultivation, as compared with the neglected treatment, and see how much net profit he has gained in the increased crop. From the results which we have occasionally witnessed in frequent tillage, we have no doubt many farmers would be surprised at the rate of increase. An hour or two of extra time given in keeping these accounts with a single field would probably give the owner a knowledge of facts worth hundreds of dollars to him in the long run. It is important that there be no half-way work in the experiment, and that the cultivation of the corn be continued from the time of the first harrowing before the young plants have made their appearance, till they have grown tall enough to overtop the back of the horse employed in the cultivation.—*Rural Era*.

Nuggets from New Jersey.

The last report of the New Jersey Agricultural Experiment Station says: "We are wasting great quantities of cattle food, such as straw, corn-stalks, etc., which could be profitably used, and we have in our markets waste products, such as cotton-seed meal, malt screenings, etc., sold at a low price, which are really worth more than many of the farm products which can be sold at a high price." Rations can be made up from these coarse farm products, and the rich waste products, which will be palatable and nutritious, and which will cost far less than those made from good hay and grain.

As a forage crop, sorghum possesses some advantages. Its weight is equal to that of Indian corn, and when cut and crushed for green fodder it is eaten with great avidity. It stands dry weather better than most other crops. The seed is a valuable part of the crop—in quality it is equal to Indian corn; and the yield on our experiment plots this year was thirty-two bushels per acre.

Ensilage is a wholesome and nutritious food. Milk from the dairy, and produced from cows fed daily upon ensilage, has been uniformly satisfactory in quality to the numerous customers who have taken it.

Green fodder corn, dried in shocks, was preserved quite as well as that which was packed in a silo.

Dried fodder corn, properly cut and crushed, was eaten by cows with as little waste as ensilage.

In three cases out of four the yield of milk was not increased when ensilage was substituted for dried-fodder corn.

Eighteen per cent. of dry matter was lost in the process of preserving green fodder corn.

The loss fell entirely upon the class of carbohydrates.

The loss was the same, both when the corn was packed in the silo and also when it was dried in shocks.

When the rations contain the same weights of digestible food, ensilage, in the majority of cases, has

no more influence on the milk yield than dried fodder corn.

A good milk ration can be made by mixing young rye with sufficient nitrogenous food.

The claim that rye at a certain stage in its growth becomes unfit for soiling is doubtless correct.

Cut while tender and stored as ensilage, rye can be preserved for more than a year and then be substituted for green rye, pound for pound, without noticeably decreasing the yield of milk.—*Weekly Press*.

Purchasing Commercial Fertilizers.

There are four requirements involved in the economical purchases of commercial fertilizers. Farmers should, first, buy what is needed; second, buy in large quantities and of responsible dealers; in other words, co-operate; third, buy concentrated material that is really available to plants.

I will suppose that in the county grange there are fifty farmers who wish to use an average of two tons of commercial fertilizer each year, or one hundred tons in all. This being the case, let the business agent of the grange contract with some responsible large dealer in fertilizers for five carloads of fertilizer, to consist of the following materials: Eighty-five (85) tons of dissolved South Carolina rock, guaranteed to contain not less than 12 per cent. of available phosphoric acid; five (5) tons of muriate of potash, containing 50 per cent. of potash; and ten (10) tons of nitrate of soda, containing 15 per cent. of nitrogen. These materials will be shipped in bags, each bag containing two hundred (200) pounds. Each farmer would then take seventeen (17) bags of dissolved South Carolina rock, one (1) bag of muriate of potash and two (2) bags of nitrate of soda, at a cost of \$36 per ton.

The materials I have mentioned are undoubtedly the cheapest sources of nitrogen, phosphoric acid and potash in efficient forms that this year's market affords. When these materials are mixed together in the proportions I have indicated, a fertilizer is produced that contains 11 per cent. of available phosphoric acid, 2.5 per cent. of potash and 1.5 per cent. of nitrogen, and it is certainly very rarely the case that a mixed fertilizer comes into the market that offers for \$36 an equal amount of equally valuable plant food. Bought in small lots mixed fertilizers containing no greater quantity of valuable ingredients cost about \$35 per ton. It may be objected by some that it is a great deal of trouble to mix a fertilizer. By turning the fertilizer out on a clean barn floor two men with shovels will thoroughly mix a large quantity in a half day.—*Philadelphia Press*.

HORTICULTURE.

Hints on Berry Culture.

In cultivating berries we expose them to the sun, thus depriving them of the protection with which nature favors them. Nature associated the wild strawberry with the grass and other low vegetation or means of shade, the bushberries with large growth sufficient straggling to form a partial shade the condition of existence, both dense shade and full exposure to the hot sun being avoided. I have known of good success with raspberries in orchards where the ground was kept well enriched, and also on steep land facing the North, but never on a Southern exposure lying bare to the sun all day. The heat and drought of our seasons shrink and dry the berries and check growth and ultimately cause the disappearance of the plant. This is true, not only of the raspberry, but the strawberry, blackberry, and, as it now seems the gooseberry also. All are affected by mildew of some kind, as we see in the rust spots of the strawberry and the red dust of the raspberry and blackberry. There are doubtless other conditions that favor mildew, such as wet, undrained clay soil and ill-treatment.

With partial shade relieving the plant, especially during the middle or after part of the day, when the heat is greatest, and with the proper soil and treatment, thus securing a free growth and healthy con-

dition of the plant, there will be little mildew to annoy, and the continuation of the plant in vigor and health during the natural term, is assured.

I have known the blackberry to extend its roots downward over six feet in sandy soil, the stalk a great growth where the surface of the soil was too poor to grow grass or other small plants. It was the great extent of feeling space for the roots and the moisture in the depth that here favored. The soil in the clearings of the North Woods is an example of this, being nearly all sand with very little fertility, and yet the blackberry, as well as the raspberry, thrives there to a remarkable extent, requiring only to be left alone. With a little manure, perfection may be reached in these clearings, with their second growth of timber, which affords a partial shade for the berries. The cultivation is next to nothing; the ground is easily kept clean, and may be worked immediately after a rain, always being loose as an ash heap. But as most of the country is largely composed of clay, a considerable outlay of labor is required. Draining and deep working of the soil—plowing, sub-soiling and fling it—are the requirements here, in connection with the partial relief from the sun, for putting berry culture on a safe basis, securing the finest fruit and largest returns even with the strawberry, and no doubt, the gooseberry also.—*Country Gentleman.*

Shaffer's Colossal.

The editor of the *Rural Home* recently visited some of the farms in Western New York, belonging to the Wayne County Evaporated Fruit Company, and says as follows:

Mr. Van Dusen has taken a great fancy to the Shaffer raspberry, and is planting them as fast as he can make plants. As we saw it bearing on the Lyons farm we are not surprised at his enthusiasm in his favor. It was bearing an immense crop. The Shaffer was, evidently, a chance hybrid of the red and black found on the farm of a Mr. Shaffer, of Wheatland (we think), Monroe county. Was introduced by Charles A. Green, of Clifton, in the same county. When we first saw it on Mr. Green's grounds, about four years since, we said that it was the largest raspberry we ever saw, but thought its color—a dark purple—would prove an obstacle to its ready sale in market. But that objection has been avoided by not offering it for sale in its fresh state, but by canning or evaporating. Mr. Van Dusen evaporated his crop last year, and disposed of the dried fruit at 50 cents per pound, 20 cents more than he received for black caps dried. He was offered, this year, 10 cents a quart for his Shaffer's for canning. So it would appear that no difficulty need be feared in disposing of the fruit. It loses considerable more in drying than Ohio or juicier blackcap.

We believe that it will yield as much or more than any other variety, and as it is perfectly hardy and a wonderful grower, it will readily be seen that it has strong claims. We have seen no other red raspberry which equals it in producing purposes.

Flowers Grown from Seed.

I am often asked what hardy flowers I like best, both annual and biennial, that are sown in garden beds with a view to usefulness, to be picked for their fragrance, either as corsage bouquets, or to make up for table or hand, and not exactly for show, as many flower beds are kept. To be sure there are "the roses, and lilies, and violets sweet," the elegant bonnards and fragrant heliotropes, but these are to be grown from slips, and many people like to raise plants from seed to fill their little flower pots, and to wear. Petunias, though fragrant, cannot be made up well, and many other flowers have the same fault. I am to be restricted to six of such as live one and the same number that survive for two years. I would choose mignonette, sweet peas and ten weeks stocks for fragrance, with Phlox Drummondii, verbenas and asters for variety and richness of coloring. The biennials that are hardy to live over the winter of their lives and give best satisfaction are pansy, carnation, columbine, forget-me-not, polyan-

thus and daisy. The small seeds are best sown in the house in shallow boxes early in spring. They must be placed where they will not be likely either to dry or to damp out; and transplanted into other boxes as they grow. The sweet peas and mignonettes are best sown out of doors as early as the season permits, and just now there is nothing more in favor for corsage bouquets, the bleeded fragrance being very rich, and the mignonette toning down the rather gay coloring of the peas. To select any six from the formidable array in the catalogues is quite an undertaking, but the old, tried friends surpass many of the newer favorites, and from early summer until frost comes, sharp and decisive, the pansy, phlox and verbenas will remain in their beauty to brighten the garden, when others are frost-blighted.—*Annie L. Jack.*

Frost on Strawberries.

All berries set and all blossoms open were killed on all varieties. Wilson's Albany about one-half out in blossom; many killed which were not open. Crescent Seedling, about one-fourth out; not many killed but plenty of blossoms left for a crop. Very promising. Kentucky and Captain Jack, not many out, but few hurt not out. Daniel Boone, Manchester and James Vick, just beginning to open; not hurt to any extent. These appear to be safest against late spring frosts of any of the varieties thus far tested.

It is safest to plant such varieties as Crescent Seedling, Daniel Boone, Manchester, James Vick and Captain Jack; for large plantations they will give the best satisfaction of the many varieties we have tested.—*Canadian Agricultural.*

The Father of the Concord.

Mr. Bull did not weary in well-doing. Year after year he planted grape seeds, and from the seedling he obtained many rare and excellent varieties of grapes, narrowing down the selections from 22,000 until there remained twenty-one, which he recommended for cultivation.

The Hon. Marshall P. Wilder, Patriarch of Pomology, in a recent letter to me, says that Mr. Bull "is and ever has been a most worthy, unpretending gentleman. Far a long course of years he has devoted his energies and skill to the production of new grapes, by which he secured the famous Concord Grape some thirty years ago, since which no other modern variety has been so extensively cultivated in our northern climes, or so appreciated by the public. Had Mr. Bull done nothing else for the benefit of mankind his name would be held in grateful remembrance while the fruit of the vine shall cool the parched tongue or its juice make glad the heart of man."—*Rural New Yorker.*

Russian Mulberry.

This valuable fruit, timber and ornamental tree was brought to this country from Russia, latitude forty-nine degrees, by the Meunonites, and is, as near as I can learn, a cross between the Morus Nigra, or Black Mulberry of Persia, and the Morus Tartarica, a native Russian variety. The tree is a very rapid grower, and grows to be very large, often reaching the height of fifty feet and from eight to five feet in diameter, and is perfectly hardy, standing heat and cold, dry and wet weather alike. The timber is hard and durable, and is used in the manufacture of cabinet ware, and proves as lasting for fence-posts as oak or red cedar. It commences to bear when three years old, is a prolific bearer, the fruit being about the size of a Kittanning Blackberry; ninety-five per cent. of the berries are jet black, the balance a reddish white. They have a fine aromatic flavor and sub-acid sweet taste, and are used for eating out of hand or for table use. Its fruit is ripening for six weeks or more, and during that period your cherries, blackberries, strawberries, and raspberries will never be molested by birds, as they prefer mulberry to any other fruit. The leaves are mostly lobed or cut, and are valuable food for silk worms. The bark is grayish white, branches

drooping. The Meunonites use it as an ornamental hedge plant, and it makes a beautiful hedge, and stands shearing as well as the Osage, and will make a hedge so dense that a rabbit can scarcely get through. In Nebraska young trees have been exposed to summer's heat and winter's cold in every possible form in order to test their hardiness in the bleak climate of this state, standing the test well and making a larger growth than the cottonwood. The scarcity of fuel in this state is like to make the people plant largely of the mulberry.—*Exchange.*

The Le Centre Pear.

It is getting to be very common of late years to hear complaints from all sections of the country of blight in pears, and from the numerous remedies prescribed, and the number of failures reported, it is likely to continue, as heretofore, a great drawback to the best of fruits. In fact, it appears extremely doubtful whether there be any certain remedy for the relief of the pear-grower while the old varieties are planted. The Le Centre pear, so far, has been free from blight, and is fast taking the place of the Bartlett, which it very much resembles, both in shape and flavor. The Le Centre is a very thrifty grower, often making a growth of six or eight feet the first year—not from the seed, however, as this pear is grown only from cuttings. This variety begins bearing at from two to three years, and at five they will have attained a size sufficient to yield a nice lot of fine luscious fruit. They are easily grown from cuttings or limbs taken from the trees in pruning. The limbs are cut about ten inches long and set in loose soil, leaving about two inches above ground, and you can count on one-half or more of them growing; often ninety per cent. will take root. This pear is comparatively a new variety, and tree peddlers have sold them at exorbitant prices, often making the purchaser pay from \$1.00 to \$1.50 per tree, when they ought not to cost more than half the amount at which they are sold. As they can be bought, now, at about fifty cents each of the nurseries, every one owning even a small piece of land ought to secure a dozen or two trees, and after a second year the cuttings from them will supply all the trees that are needed on an ordinary farm. The fruit bears shipping much better than ordinary apples, and so far has found ready sale in the large cities at from three to five dollars per bushel. Try some of the trees; you will not regret it; or, at least, I never have regretted, even the price I gave.—*S. L. Barker, in Germantown Telegraph.*

Planting a Nut Grove.

Black walnuts, hickory nuts, chestnuts and butter nuts for planting should never be allowed to dry and the fresher they are from the tree the more certain they are to grow. If the ground can be got ready for planting in the autumn it is well to put them in the rows in the vegetable garden, where they are to grow for the first two years. All of the four kinds mentioned should be planted in rows three and a half or four feet apart, and five or six or eight inches apart in the rows, and all about three inches in depth. If the ground cannot be got ready in autumn, place the nuts in a shallow box of sand, and bury them in the garden where they may freeze during the winter. The bottom of the box must be loose enough so the water can run out.

Whether planted in autumn or in spring in the garden they should be cultivated as soon as the young trees make their appearance. They should be kept perfectly clean the first summer and also the second summer. Some of the nuts may not come up until the second spring. When they are two years old they are ready to transplant. It is best to wait until early in spring, however, to do this work. The ground should be thoroughly plowed and leveled. A crop of potatoes upon soil ground is a good preparation. Select the largest, straightest trees in the rows for your own use. If any of the trees have grown puny and crooked from the first, throw them away. They will never overtake their more thrifty neighbors.

If the young trees are to be set in fence corners or upon the roadside, they must be kept thoroughly mulched with coarse straw for at least five or six years. An annual spading about the roots will also promote the growth wonderfully. If they are set in an orchard by themselves, they should be placed in rows thirty or forty feet apart each way, and kept cultivated until they begin to bear. The ground can be occupied by corn, potatoes or beans or squashes, keeping up the fertility by the use of barnyard manure. After the trees begin to bear, the ground may be seeded and pastured by sheep or calves. Sheep will keep the grass short, which will make it easier to gather the nuts that have fallen to the ground.

The trees will begin bearing in from six to eight years from the time they are transplanted, and will increase in height at the rate of one and a half to two feet each year, for the first twenty years at least. The walnut and chestnut will grow the most rapidly, the butternut next and the hickory slowest of all. They will need no pruning except to form the heads from four to six feet from the ground, and to cut out any limbs that may become crossed or broken.

The above directions, with many additional details for which unfortunately we have no space, are from the pen of Professor Satterlee, and appear in the current report of the Michigan Horticultural Society. The paper concludes as follows:

"I know of no more enjoyable thing about a farmer's house than a small orchard of nut-bearing trees. An acre or two devoted to this purpose will do as much to keep the boys and girls at home while young, and to make the memory of the old home blessed in after life, as anything that I could name.

Do not say "It takes too long to get the trees in bearing." I have young trees growing that are the grandchildren of those that came from the nuts that I planted only twenty years ago. I was 16 years old then and am not a very old man yet. I feel as keen enjoyment in raking over the golden leaves and searching for the rich, brown nuts as any of my younger friends, and I hope to experience the same enjoyment, and appreciate it, too, for many years to come.

Watering Newly Set Trees.

That newly planted trees in certain unfavorable seasons and certain conditions of the soil do occasionally require watering will not be denied. But the cases are so rare that they are scarcely to be taken into account. A tree properly planted, with the soil in the right condition, immediately goes to replace roots which had been severed in removal. The earth grows warmer every day, and the young rootlets feel the influence of this heat, and new fibers immediately break from them, as may be seen by examination twenty-four hours after planting. The soil has probably a temperature of 60° or 65°, and perhaps more, but just as all is going well enough, along comes the planter with a pail of cold water, which he dashes around the tree, chilling the earth, and, indeed, often killing the young fibers. Trees can stand a great deal, or twice as many would never survive. The tree leaves out with the great heat of the sun upon the soil, and again the fibers begin to put out; once more comes the shower-bath, often a third time, and if the tree does not die it is in spite of the planter.

It is rare that a tree planted very early needs any water; certainly only in a very dry soil, and it should then be given at the time of planting. But later in the season, when the sun's rays are more powerful and evaporating more rapid, possibly one or at most, two waterings are all any tree needs. If the planter has nothing to do, and wishes to show his affection for his trees, he can safely take his syringe, or even a fine rose water pot, and moisten the whole top of the trees, which will do far more good than to drown the roots.—*Canadian Farmer.*

Manuring Fruit Trees.

It is singular how long some Fallaces retain their hold, even after they have been disproved by facts,

and of these, one of the most mischievous is the belief that fruit trees and bushes are liable to injury rather than benefit from the application of manure. All sorts of disease, such as canker and other ailments to which fruit trees are liable, are set down as the result of applying manure to the roots; whereas in nine cases out of ten, it arises from poverty of the soil, causing the roots to run down into the bad subsoil. I am continually hearing complaints from owners of fruit trees as to their unsatisfactory condition, and on examination have invariably found scarcely any fibres of any kind, nothing but long, thong-like roots, that run right down to the subsoil. On inquiry I have usually found that manuring or top-dressing had not been practiced for many years, their owners having come to the conclusion that such practices were dangerous.

I do not say that manure will prove to be a cure for fruit-tree ailments of all kinds, but I will briefly detail a few facts that have come under my observation at various times, to prove that starvation of the roots is a far more prolific source of injury than abundant feeding of the surface roots, both with solid and liquid manures, and growers must form their own conclusions as to the best course to pursue. The fruitful or unfruitful state of orchard trees in nine cases out of ten is entirely dependent on the attention which they receive as regards manuring.

In fruit growing parts of Kent, where large orchards of standard trees planted on grass land is the rule, it is a well-established fact that if the grass is cut for hay and carried away, the trees soon become unfruitful and die out; while, on the contrary, if the grass is fed off, so that the nutriment is returned to the roots in the shape of manure, the trees keep fruitful and healthy. I have seen some of the most moss-grown, miserable specimens of starved orchard trees restored to fruitful condition by making the ground beneath them the winter quarters for sheep and pigs, feeding them at the same time as if they were in the farmyard with roots and corn.

The finest old specimens of apple and pear trees are generally those in an orchard next to the homestead that is used as a run for calves, sheep, pigs and poultry the whole year around. In these orchards the turf is short, and being full of nutriment the trees keep healthy and prolific for an indefinite period. Ashes, grass refuse, or any kind of road scrapings, or even scavengers' rubbish may be utilized for increasing our supply of orchard fruits. They should be spread roughly on the surface in winter, and in spring harrowed and rolled down firmly. The result will soon be a marked improvement in the size and quality of the crop. Difference of opinion prevails as to the pruning or non-pruning of trees, some adopting one system and some another; but, be that as it may, I never knew fruit trees continue to yield good crops for any length of time unless the roots were supplied with manure in some form or other.—*London Garden.*

A New Orchard.

There is no more profitable use to which a farmer can devote a share of his land than to orchard planting. If he intends the fruit for his own use only, it will be in the best sense of the word profitable, as it brings health, comfort and enjoyment. Many plant trees without properly considering the varieties, and then grading the land thus occupied, ask of it what is required of no other field upon the farm, viz: that it shall annually support two crops, the trees and grass, grain, or something else which usually has the land all to itself. This treatment is mainly the cause of the "giving out" of fruit, about which we hear in some of the older states. While we advocate the planting of orchards, we have too much regard for trees to wish them to be submitted to such treatment. Unless one can be content with one crop from his land, and be willing to give it up to the trees, he had better not plant them. Of course, while the trees are young, a wide strip between the rows may be occupied by a crop, but when they come into bearing, the trees should have the whole land, and all crops, such as clover and other pasturage for pigs, should be grown for the benefit of the

trees. An orchard, properly treated, may be made profitable if the fruit is sold, dried or "evaporated," or converted into cider or vinegar. There is no better time to prepare for an orchard than during the fall months of October and November, whether the planting is to be done this fall or next spring. The most important work of preparation is drainage. Trees are planted upon soil that is too wet, with the intention of laying the drains afterward. It is much better to drain before planting.—*City and Country.*

HOUSEHOLD RECIPES.

TEA No. 1.—If one is to have the deliciously flavored and delicately perfumed beverage called *Tea*, known, alas! to so few Americans, one infallible rule must always be followed, viz: *Never allow it to boil.* Sisk an epure of long residence in China: "You Americans know nothing about tea; you not only boil it, but you make it far too strong, thus ruining its flavor. If you would have it perfect it should be made as follows:

Firstly, make sure that your tea-pot is perfectly clean, for one stray leaf from the last brewing will injure the flavor. Then let me say that the tea-pot, if of metal, must never be washed with soap or scoured inside, only washed and scalded well in clear hot water and put away, ready for use. Take freshly boiled and actually boiling water, scald the tea-pot, to make it quite hot, then put into it a half-teaspoon of tea for each cup, pour over it the boiling water and let it stand five minutes, when it is ready to pour. If you would have the perfection of tea, never spoil it with cream. Russian tea is delicious to serve for 5 or 9 o'clock tea. Prepare as above, then put a delicate slice of peeled lemon into the bottom of the cup, laying on top of the lemon one or two lumps of sugar and pour over this the hot tea. Of course, no cream can be used with tea. Every good housekeeper will see at once how impossible it is to have the tea brewed properly anywhere but in the parlor or at the table, and by the lady herself. The great variety of spirit-lamps and kettles renders it impossible for everyone to do this, and it adds, also, very much to the grace of the table. A little spirit-lamp can be bought for thirty cents, over which the water can be heated in the teapot, it first having been boiled in the kitchen; it will then require but two or three minutes on the lamp before it begins to sing. For twenty-five or thirty cents more a pretty Chineses teapot can be bought, to make the tea in. When the kettle commences to sing, pour into the new pot a little water and pour out again; it is now scalding hot and all is ready to proceed as above. The tea saved by this process will pay for the small amount of alcohol required by the lamp. Then, there are the pretty bronze and brass and silver kettles which come for the purpose, all of which are more or less expensive. A very pretty one can be had for about \$3.50, and almost every one has pretty teapots, which have been put away as ornaments, not liking to trust them to the careless hands of servants.

A "cozy" thrown over the teapot while the tea is brewing will keep it hot longer.

As to varieties, Oolong and English breakfast are best. The much-abused English breakfast tea, made in the above careful manner, would scarcely be recognized by its abusers.

TEA (No. 2.)—No beverage, perhaps, is so varied in quality as tea, from the cup of lukewarm water, with a faint seasoning of boiled hay, to the smooth, rich, amber fluid that seems to act on the jarred nerves like an emollient, and sends a stream of fresh life coursing through the veins. This grade, however, is almost as rare as a four-leaved clover; and yet, a cup of tea is considered "the easiest thing in the world to make."

That is just the trouble, and Bridget's style of making it is to drown it in water that does not boil, and serve it up hastily, a weak, lifeless decoction; or she puts in twice the amount of tea needed and lets it boil for an indefinite time. The dull, blackening fluid which results is neither cheering nor in-

elating, but there is a sharp, bitter twang about it which tea properly made never has.

"You boil black tea," says an experienced house-keeper, "but the green flavored or Japan teas should only steep." This, however, is a mistake; as no tea should really boil, but merely simmer for a longer or shorter time, according to its nature. Black tea requires about twenty minutes, Japan tea ten or twelve.

Cheap, or rather low-priced tea, is very doubtful economy, as the best qualities go further and are more satisfactory in every way. At the present rate of prices a fairly good tea cannot be expected for less than seventy five cents a pound. When bought it should be kept in an air-tight canister, and made as needed with the greatest care.

One heaping teaspoonful of tea for each person and one over for the teapot, is the received rule, and it should be made exactly so many moments before it is wanted, by putting it to steep in a covered vessel with water boiling at the moment it is poured over it, and scarcely more than enough to cover it thoroughly. The teapot in which it is to be served should be freshly scalded, and when the tea is transferred to it it can be filled up with boiling water to the amount required.

COFFEE No. 1.—Be sure the coffee pot has been well washed and scalded in clear, hot water (it must never be washed with soap or scoured inside, a connoisseur will detect instantly the metallic taste that either imparts to the coffee). Then put into it two tablespoonfuls of finely-ground coffee for each person. For four people, stir into it a third of an egg, then a small cup of cold water, and lastly enough boiling water for the amount of coffee required. Allow this to come quickly to a boil, but the instant that it boils, draw it to the back of the range, where it cannot boil, and allow it to stand for six or eight minutes to settle. This, carefully followed, makes a delicious, clear, strong coffee.

The best coffee is made from a mixture of one-third Mocha and two-thirds Java, which should be bought browned, as it can be more carefully and evenly roasted by the large roasting establishments. If possible, buy only a three-days' supply at once and keep this carefully in an air-tight tin coffee-box. Grind each time just before using only the amount required for that meal. In order to prevent the using of too much egg, which spoils the coffee, take one egg, beat it slightly in an ordinary kitchen cup, then fill up the cup with water, putting in also the shell. This will settle coffee four times for a family of four or five. First use the shell and a little of the liquid, and the remainder of the liquid for the other three times.

COFFEE No. 2.—The ordinary method of making coffee is to boil it—sometimes for five minutes, oftener for fifteen, and not infrequently, in the case of a careless servant, or ignorant mistress, for half an hour. A delicious aroma pervades the house during the process, giving promise of good things to come when breakfast is served. But the strength and life of the coffee have been exhausted in the continued boiling, and the beverage, when poured out, has a bitter taste, and looks more or less muddy. It should not be allowed to boil, although some housekeepers, whose coffee is certainly beyond reproach, declare that a quick bubbling of from two to five minutes, is an improvement. But it will generally be found that they are very particular in other details; just as get the best Mocha and Java, have it freshly burned as well as ground, for immediate use, and see that the water is boiling at the moment it is wanted.

Those, however, who try the following method will scarcely feel disposed to change it.

A large, heaping tablespoonful of the ground berry should be measured out for each coffee drinker, and one over; then put into the coffee-pot the necessary amount of water, already boiling, drop in the bag and place the coffee-pot on a hot part of the range or stove and let it stand there for fifteen or twenty minutes without being allowed to boil.

For extra occasions the contents of the bag may

be mixed with an egg; for ordinary ones, with the shell. A coffee euphure says that one-ounce of chloro to seven-ounces of mixed Mocha and Java is a decided improvement.

PARISIAN EGG CHOCOLATE.—For three cups, dissolve three ounces of the best chocolate in four cups of water and set it over the fire; beat the yolks of two eggs to foam with powdered sugar, and stir them in the chocolate as soon as it begins to froth; skim off the froth into warm chocolate cups until they are heaped full, then hold a shovelful of burning coals over each till the froth is converted to a light crust, then serve.

Another method is by adding froth-cakes prepared in the following manner: Beat the whites of a dozen eggs to froth, and stir in powdered sugar till the mass is of the consistency of stiff paste. Mould the paste into small cakes about the size of a hazel nut and dry them in the sun or a warm room. As soon as the egg yolks have been stirred into the chocolate, add as many of these cakes as there are cups of the liquid, and continue to stir it until the whole mass becomes froth. Care must be taken to keep the chocolate near the boiling point, whether on or off the fire, without letting it boil over.

CHOCOLATE.—For one cup of chocolate, take a silver tablespoon heaping full of carefully grated Baker's chocolate, and a silver teaspoonful of granulated sugar; mix these together in an earthen bowl, and pour over them a quarter of a cup of milk and a quarter of a cup of water; stir well and allow to stand for one hour. Put a tin basin into a kettle of boiling water; into the basin put a quarter of a cup each of milk and of water. When these boil, stir in the chocolate mixture and allow to cook for fifteen minutes. This makes a cup of thick, delicious chocolate. A half a drop of vanilla extract, stirred in just as it goes to the table, adds much to the flavor, and a little whipped cream to the richness.

ICED TEA.—Iced tea is made by infusing the usual quantity of tea in cold water, and should be made several hours before needed. It should be bottled and placed in the refrigerator till needed. This drink is used without milk or sugar and is very refreshing in the hot weather. The quality of the water used is important in all tea-making, as really good tea cannot be made of water which contains an excess of lime. A little super-carbonate of soda (cooking soda) may be added in such a case, and this is thought not to injure the flavor of the tea.

CRUST COFFEE.—Take a large crust of brown bread, and dry it in a toaster till it is nearly at the burning point, lay it in a saucpan and pour boiling water over it, boil it a minute or two, and then strain off the coffee. Return it to the saucpan with the addition of a little milk or cream, and boil it again. It should be made strong enough to look like real coffee, of which it is a very good imitation, when well made. This is excellent in sickness, especially in some varieties of summer complaint.

EPPS' BREAKFAST COCOA.—Is easily made in this way: Heat some milk and put it into a fancy pitcher or jug suitable for the table. Mix with this cocoa in proportion of one teaspoonful for each person, and stir till dissolved. Then fill the jug with boiling water. This method is quite as good and much easier than the directions upon the wrapper. It should be stirred at the table before serving.

COCA SHELLS.—An infusion of cocoa shells is a light and reliable breakfast drink. Made in the proportion of one tablespoonful to a person and thoroughly boiled for a long time, with the addition of milk and sugar at the table, it is particularly acceptable to those who do not like the more stimulating coffee or tea, or heavy chocolate.

CAFE NOIR OR BLACK COFFEE is used as an after dinner beverage, and is generally believed to promote digestion. It is made double the usual strength (two heaping tablespoonfuls for each person) and is served in tiny cups after a hearty dinner, without cream or sugar.

CRACKED COCOA.—Use the same quantity as of coffee. Cocoa in this form needs thorough and long

boiling to extract its full strength. By adding a small quantity of cocoa daily, the consumer will have a highly-flavored cup of cocoa at a trifling expense.

DANDELION.—Prepare the roots in the same way as chicory. This makes a good, cathartic drink, in the spring, when people are bilious and ailing.

CHICORY.—Wash the roots until clean, dry in the oven until brittle, grind and prepare the same as coffee.—*Weekly Press.*

LIVE STOCK.

Crossing on Merinos for Wool and Mutton.

Following the lead of Mr. C. Hills, I venture to offer a few remarks as to the best mode of crossing on Merinos for mutton sheep. I scarcely think the Downs, any of them, would answer well, as they are not very large and they approach too near the Merino in denseness and fineness of fleece. I have used the Downs on Leicester and their grades with advantage in producing finer wool for family use and also superior mutton; but the sheep that pleased me most of all for general use was obtained by using a Cotswold ram on pure Southdown ewes. The result was a finely-formed sheep of excellent quality of mutton, with dense, moderately long, crinkled wool, of great luster and fineness. The fleece of a lamb (accidentally killed by dogs in the fall) weighed, when well washed in warm water, 11½ pounds. Now I feel confident that the Cotswold would cross equally as well on the Merino, giving the product the size and aptitude to fatten desired for a mutton sheep, and produced a fleece of good, serviceable and lustrous wool, which, if produced in sufficient quantity, would surely find a market for the manufacture of certain classes of goods. The whole region interested should adopt one standard of crossing, so as to make the produce of wool uniform. It won't do for one county to use Down rams, another Cotswolds, and still another Lincolns or Leicesters, as a nondescript clip will result that buyers will not care to handle. Mr. J. Harris, of Rochester, used Cotswolds on Merinos with the very satisfactory results mentioned by Mr. Hills.

If in a few generations the sheep get too coarse to suit the market, a cross back on Merino or a Southdown cross would do the work, and add to the quality of the mutton. I write from personal experience, having handled cross bred sheep for twenty-five years, bred simply for good mutton and wool for family use. But mind one rule, never use grade rams. If you do you will not be able to name the progeny, they will be so various.—*W. J. Winter, in the Breckers' Gazette.*

Can Horses Travel Unshod?

Whether shoeing is necessary or not remains to be tested to the satisfaction of the majority. Some believe that shoes cannot be dispensed with on the cobble stones of the cities, but are inclined to the opinion that shoes are not altogether necessary on soft, sandy, or light, gravelly roads. In Chicago a gentleman neglected to shoe his horse, and allowed it to walk on the cobble stones. At first the feet became somewhat sore, and the hoofs cracked and seemed very brittle. In time, however, the hoofs began to harden in texture, became callous to the hard usage, until now the owner declares he would not use shoes again under any circumstances. Just here we desire to call attention to the subject. If the feet, by direct contact with the earth, improve, and the tenderness and brittleness of the hoof is changed, it may be possible that those who have attempted to work their horses unshod have been alarmed at what they supposed lameness, when a little patience would have demonstrated the method as feasible. Any one who is accustomed to wearing shoes finds it very inconvenient to walk barefooted for a few days, but after a short time the feet become insensible to substances with which they come in contact, and then one easily manages to walk on stone, gravel, in the sand, water, or even upon sharp substances without

the least difficulty. Thus it may be with horses, when the shoes are removed. They will find walking awkward, and the feet may become sore; but after a lapse of time they will be able to pull over the worst kinds of roads.

So far as our own opinions are concerned, we have not given the matter a test; but the experience of those who have tried working horses without shoes cannot be ignored. It will be hard to convince most persons that shoeless horses are able to endure the hard cobbles stones, but that horses may walk upon good country roads is within the limit of possibility. It would not be a troublesome experiment if farmers should put the matter to a test by leaving the shoes off one or two for comparison. If we could work our horses anywhere without shoes it would be a great saving in the course of a year, not only financially, but from the inconveniences so often experienced when horses are to be shod during a busy time.—*Rural Era*.

Cruelty to Animals from a Veterinary Point of View.

The following is the report of a committee appointed by the British National Veterinary Congress, for the purpose of further considering the subject of cruelty to animals from a veterinary point of view, and publishing a declaration in the name of Congress on certain practices and painful operations relating to and performed on animals—namely whether such practices and operations are sometimes necessary, and, if so, under what modifications or qualifications they may be performed; or whether they are unnecessary, and therefore cruel:

Lameness may be painless or painful. Those cases where the lameness passes off with exercise are *prima facie* cases being accompanied by pain—this specially applies to cases of navicular disease and spavin. In such cases horses ought to be worked, and when worked it is cruelty.

Gingering is decided cruelty.

Wounds are not causes of unfitness for work, unless pressed upon by harness, or affected by the movements of the animal.

The practice called justifying causes acute pain, and is frequently unjustifiable.

Burning gums for lampas is cruelty.

Knocking out wolf-teeth is cruelty.

Extracting temporary teeth, save for surgical reason, is cruelty.

Docking and kicking horses are cruel operations when done for fashion.

Marking and branding animals, when necessary, should be performed by the quickest and least painful method.

Worming the tail, docking and cropping the ears of dogs are unnecessary, and therefore cruel operations.

Castration of male animals is necessary, but should be performed in the least painful manner, and by a skilled operator.

Spaying of female animals is unnecessary, and ought to be abolished.

Operations of various kinds are frequently performed on animals by ignorant persons and much cruelty is caused thereby, which ought to be publicly deprecated and prevented by law. All painful operations not required for the good of the animal operated on are of a cruel nature. No operation causing pain to an animal should be performed by an unskilled person. All necessary operations ought to be performed in a scientific manner, and by the most humane methods, in order thereby to prevent the infliction of unnecessary pain.

Weight of Sheep.

But few farmers are aware of the heavy weights sometimes attained by the large breeds of sheep. Some of the breeds, as managed in England, exceed 300 pounds. The average weight of ten months' lambs, at Smithfield, England, in 1884, shows that the growth of those lambs from the special breeds is very rapid. The lambs of the Hampshire, and Wiltshire Downs averaged 204 pounds; cross-breeds, 188 pounds; Oxfordshires, 178 pounds; Cotswold,

176 pounds; Shropshire, 153 pounds; Southdowns, 161 pounds; Leicester, 129 pounds. At the age of twenty-one months, the weights were as follows: Hampshire and Wiltshire Downs, 293 pounds; Oxford, 292 pounds; Lincoln, 283 pounds; Cotswolds, 283 pounds; cross-breeds, 370 pounds; Kentish, 253 pounds; Leicesters, 244 pounds; Shropshires, 239 pounds; Southdowns, 216 pounds. Here we notice that the Southdowns fell but little below the Leicesters at twenty-one months, and exceeded them at ten months. The above showing is a creditable one for the Southdowns, and confirms their position as one of the best breeds that can be used for improvement.—*Farmer and Dairymaid*.

Working Horses Without Shoes.

We believe that a good deal of money is wasted in the needless shoeing of farm horses; for the shoe being unnatural is always accompanied with more or less risk, especially in the hands of ignorant or careless farriers. Bad shoeing and trotting on hard pavements are among the most frequent causes of lameness in all cities; and it is not at all unusual to see valuable horses in all large cities sacrificed after a short period of abuse, for a small fraction of their worth when sound. Such horses are often young, spirited, and valuable animals, and need only a little careful handling to recover the use of their feet in many instances. The best treatment for such cases is to knock off the shoes, and turn the horses into pasture for a few weeks, when they will often recover sufficiently to work without shoes. Shoeing is far less needed than most persons suppose; if the horse is worked on the farm, and does not have to travel much on very stony or veay hard roads, he will do better without shoes for at least eight months of the year; if the roads are quite hard, macadamized, or stony, as they are in the neighborhood of the writer, horses with good sound hoofs will do a great deal of work without shoes, and suffer no injury. One of the ablest physicians of Middlesex county, who has a large practice, and is obliged to drive his horses sometimes pretty hard, finds they do better without shoes, although he lives in a district where the roads are very hard. Of course, the hoof must be sound, and if accustoming to shoes must be accustomed to going without them by degrees, but when used with some care there is no difficulty in driving most horses as much as they ought to be driven over roads of average hardness without shoeing at all, for at least eight months of the year; if the work is on pavements, the case is different, especially if drawing heavy loads upon the pavements, when the shoe with calks is needed to enable the horse to hold on and to prevent slipping. In winter when the roads are icy, the sharpened shoe must be used to prevent slipping, but on ordinary snow, until it becomes icy, there is no occasion for shoes in winter any more than in summer. The saying is not only in blacksmiths' bills, but in the greater health and soundness of the horse's feet. There are many chances to pick up valuable horses in our cities, made lame by bad shoeing, which only need to have their shoes taken off and rest for a few months to make valuable animals.—*N. Y. Witness*.

Remove Warts.

A correspondent of the *Germanautown Telegraph* says: "Fresh, clean hog's lard rubbed three or four times on any kind of warts on horses or cattle, will remove them on three or four applications. I have removed the warts time after time, and have never been able to find the wart for the fourth application. If I should send the Latin name for lard and tell me to pay fifty cents to the druggist for about two cents' worth of good lard this remedy would be often used."

A MEXICO sheep breeder is of the opinion that the wool of a pure bred merino should not average over three inches in length. It should be of clear white color, and weigh about seven or eight pounds to the fleece. We often read of fleeces that weigh from twenty to forty pounds, but such fleeces will, in scouring, diminish all of 80 per cent.

LITERARY AND PERSONAL.

INTERESTING DOCUMENTS, issued by the department of Agriculture, Washington, D. C.

THE NORTHERN SUGAR INDUSTRY.—A record of its progress during the season of 1883, by H. W. Wiley, Chemist. Bulletin No. 3.

An investigation of the composition of American wheat and corn. Second report, by Clifford Richardson, Assistant Chemist. Bulletin No. 4.

Report on the Condition of the Crops, the yield of grain per acre, and on the rates of freight of transportation companies. October, 1884. Bureau of Statistics, new series, Report No. 12. Combining 262 royal octavo pages, 10 folding is other than charts, and scores of statistical tables; besides five full page plates of sugar factories and their concomitants, five illustrations of machinery, and three of microscopic objects. The officials who are instrumental in getting up these reports are certainly no drones—we believe they earn their compensations—that they are not generally read is not their fault, but rather the fault of those for whose benefit the information they contain is collected, compiled and published.

PLEASANT VALLEY NURSERIES.—John Collins, proprietor, Norristown, New Jersey. A very lively illustrated octavo catalogue of small fruits, with embellished covers and 26 pages, embracing lists of varieties and wholesale and retail prices. Beautiful colored illustrations of "Marlboro Raspberry," "Early Cluster Blackberry," and the "Comet Pear." Besides plain cuts of the "May King Strawberry," "Ranocoe Raspberry," "Poughkeepsie Red," and "Ulster Prolific Grape;" "Japanese Chestnut," "Kieffer Pear," and "Russian Mulberry."

GREEN'S FRUIT GROWER.—A quarterly, 8 pp. folio, devoted to the orchard, the garden and the nursery Rochester, N. Y. 50 cents a year. In quoting or making selections from the columns of this journal, one somehow feels a confidence in it worth that few other journals in the same specialty can give.

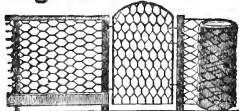
STUDENT'S FARM JOURNAL.—Edited by the Agricultural and Horticultural Association of the Iowa Agricultural College. Published at Ames, Iowa, monthly, at 50 cents a year, and worth a dollar at least. A fairly printed and cleverly filled eight page quarto, that has just entered upon a career of progressive usefulness; No. 2, Vol. 1, having reached our *smelton*, and it looks as if it might be the harbinger of a prosperous future—perhaps not peculiarly prosperous—and become a prosperous diffuser of useful knowledge. We do not think, however, that we would trouble ourselves much in advertising a man who asserts that "All the blockheads are on the farms." Indeed, 'tis a pity they are not all there. They might be made useful members of society, instead of the Dudes and Dronea that aspire to official stations.

THE MATRIMONIAL TIMES.—Devoted to the Interests of those who desire to extend their acquaintance or correspondence. Published monthly by a "company," at 50 cents a year. No. 88 Court street, Boston, Mass. How to make \$21,675 in 3 years for \$2, and "failure impossible," is one of the prominent advertisements, which may, or may not, reflect the character of the matrimonial engagements secured through the official influence of this journal. Somebody has suggested that we would have far more successful times in this country if the State, and United States governments, were run by contract by some responsible company; and, if so, why might there not be more happy and successful marriages than there are now, if that relation between the sexes were conducted on business principles through the instrumentality of a responsible company or Bureau 9 cases of desertion; 15 cases of adultery; 5 cases of assault and battery; 7 of fornication and bastardy; 8 applications for divorce, and 2 murders occasioned through jealousy, before one court in a district of less than 100,000 population, would seem to imply an opening for some improvement on the old system. Independent of its matrimonial specialty, this neat 8-page demifolio contains much interesting reading matter.

The Newark Machine Co. will arise at once from its ashes.

The Newark Machine Co., of Newark, O., whose factory burned on Saturday morning, July 5th, consumed a large number of Clover Hullers, Grain Drills, Rakes, Monarch Fans, &c. A large force of men are now at work building Clover Hullers, Grain Drills &c. They are getting out material at the B. & O. Shops, at Zanesville, and John H. Thomas & Sons, Springfield, who have kindly tendered them their factories, at which places they are getting out the woodwork for Clover Hullers, &c., and expect to have some on the market by August 1st. They have received many letters and telegrams from different manufacturers throughout the U. S., offering them aid in any way. The firms that have heretofore supplied them with raw material, have telegraphed them, offering anything they may have that could be used in the construction of their implements, at low prices and long credits. Their insurance is about \$250,000, distributed among 61 first-class companies in this country and Europe, and the adjusters are now there and at work and expect to finish the whole thing soon. The Company has commenced building one shop 225 feet by 40 feet, 2 stories high, and 300 feet of shelving, to be used for work shop and paint room, and they expect to be ready after August 1st to fill any orders in their line of goods.

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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 success of the farmer, are alone worth much more than the price of this publication. He is determined to make "The Farmer" a necessity to all households.

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Dr. S. S. RATHVON, Editor.

LANCASTER, PA., DECEMBER, 1884

JOHN A. HESTAND, Publisher

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

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WE TWARD,	Leave Lancaster,	Arrive Harrisburg,
Pacific Express	1:55 a. m.	2:55 a. m.
News Express	6:25 a. m.	7:30 a. m.
Way Passengers	6:30 a. m.	8:50 a. m.
Mail Train via Mt. Joy	9:30 a. m.	10:50 a. m.
Mail No. 2 via Columbia	9:35 a. m.	11:05 a. m.
Hanover Accommodation	9:45 a. m.	10:55 a. m.
Fast Line	9:50 a. m.	Col. 10:20 a. m.
Frederick Accommodation	1:15 p. m.	2:55 p. m.
Lancaster Accommodation	1:45 p. m.	Col. 2:15 p. m.
Harrisburg Accommodation	2:30 p. m.	4:00 p. m.
Columbia Accommodation	2:50 p. m.	Col. 3:45 p. m.
Harrisburg Express	7:40 p. m.	8:50 p. m.
Western Express	11:10 p. m.	12:25 a. m.

EASTWARD,	Lancaster,	Philadelphia
Mail Express	12:42 a. m.	2:55 a. m.
Philadelphia Express	2:27 a. m.	4:25 a. m.
Harrisburg Express	7:45 a. m.	7:50 a. m.
Columbia Accommodation	8:10 a. m.	10:20 a. m.
Seashore Express	9:00 a. m.	11:45 a. m.
Johnstown Express	12:55 p. m.	3:15 p. m.
Day Express	2:25 p. m.	5:05 p. m.
Harrisburg Express	6:45 p. m.	9:45 p. m.

The Frederick Accommodation, west, connects Lancaster with Fast Line, west, at 1:25 p. m., and runs to Frederick. However Accommodation, west, connecting at Lancaster with Niagara Express at 9:45 a. m. will run through to Hanover daily except Sunday.
Harrisburg Express, west, at 7:40 p. m. has direct connection to Columbia and York.
The Fast Line, west, on Sunday, when flagged, will stop at Downingtown, Coatesville, Parkersburg, Mount Joy, Elizabethtown and Middletown.
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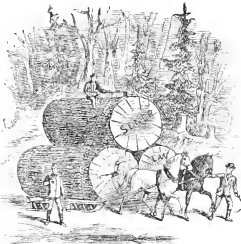
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LANCASTER, PA.

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Feb-5a

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nov-17

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., DECEMBER, 1884.

Vol. XVI. No. 12.

EDITORIAL.

DECEMBER.

"The last fell object of this scene
That passed before my view,
Was a scowling aged man
Dressed in ambiguous hue,
Around his humped shoulders hung
A shaggy coat of white,
Made from the polar bear's rough skin,
The emblem of stern night;
His upraised right hand clutched an axe,
His left a fagot gnarly,
And from his belt a canteen hung
Filled with the "juice of barley,"
Out from his glaring eye balls shot
A glance I'll e'er remember,
And from his lips a shiv'ring blast
That echoed "Old December."

This was the *teuth month* when the year began in March with the vernal equinox; but since January and February have been placed before it the term has become quite incorrect, it now being the *twelfth month*, and also the last one of the year.

The month of December, perhaps, now the most remarkable month in the year, as containing the festival of Christmas-tide, the original period of which was transferred from the 6th of January to the 25th of December, by Julius I., in the fourth century of the Christian era. The advent of this month heralds the death of the pending year, and the birth of a new one; and also the apparent death of Northern vegetation, which, however, bequeaths to posterity the germs of its future resurrection.

"December, says VERSTEGAN, had his due appellation given him by our ancestors, in the name of *Winter month*, that is, *Winter month*; but after the Saxons received Christianity they then, out of devotion to the birth-time of Christ, termed it *heligh-month*, that is, *holy-month*."

It would have been much better to have attached January and February to the end of the year, than to the *beginning*; commencing the *New Year* when nature begins her annual renewal. Under any circumstances, the months of January and February are employed mainly in preparation and transition.

There is still some out-door work on the farm where the weather permits; governed by locality, previous vigilance, and forehandedness. The care of hot-beds, the preparation of composts, manure for hot-beds, transplanting trees, draining trenches, and many other matters may still be attended to. To those who pay my attention to market gardening, raddishes and salads may be sown in frames.

Still, December with the provident farmer may be the opportunity for domestic enjoyment, provided he is not too fond of spending his leisure hours in the tavern and the town. He has passed through the hurried labors of seed time and harvest, and his crops have been marketed or are safely stored away for future use. If he wills it, now he may have

time for reading, for reflection, and for social intercourse. The farmer, unconsciously perhaps, occupies an exalted position in life's social and physical economies, for he ministers not only to his own and his families' wants, but also to those of the community of which he is a member; and not to these alone, but often to communities in remote parts of the earth.

From the general isolation of the farmer, and his deprivation of social fellowship, more than many other occupations, he and his family are in a measure thrown back upon themselves for recreation and enjoyment. This, however, is not always a subject of regret, because under such conditions good books and flowers, and where practicable, music and innocent diversions, may afford a *pure* recreation, than much that obtains in social intercourse. Away back in the memory of our juvenile school days, we recall a significant "copy" set by the master, viz: "Ereil communications corrupt good manners;" without knowing exactly what it meant. Since that period hundreds of thousands of fellow-beings have sadly realized its meaning, and some of them have come from the *farnas* too.

"Better is a dinner of herbs and love there-with, than the stalled ox and *hadred* there-with."

ANNUAL GREETINGS.

It seems to be a common custom for representatives of periodical publications, to hold a "confab" with their readers and patrons, at the end of each year at least; it may be oftener, but not less than once in twelve months, is considered as almost obligatory, and we have no desire to "shirk" the obligation. There are circumstances, no doubt, under which such a confab might constitute a most agreeable and reciprocal medium of intercommunication, and there are also circumstances under which it might not. It is not for us to say what the relation between us and our readers and correspondents may be, for even if we had ever intentionally offended, that offence could not possibly have extended to one hundred thousand, especially if restricted to contributors and correspondents. But that is neither "here nor there," what we desire to say just now is to the effect that this number of the FARMER completes our sixteenth volume, and we beg leave to apologize for telling our readers a thing that common sense dictates they certainly know, or ought to know themselves. By the sheepest economy the LANCASTER FARMER has "pulled through" a somewhat precarious tenure of sixteen years; and, so far as the obligation or responsibility ought to rest upon the shoulders of the yeomanry of Lancaster county, there is no reason why it should not survive sixteen hundred years. If man ate "baker's bread" sixteen hundred years ago (*Vale Herulanum and Pompeii*), and still eats it, it is more than probable that he will continue to eat it until the end of time, if grain should be cultivated so long. Many things in this world

have been *ephemeral*, but it has been demonstrated that the FARMER has not been among these, for it has already lived 5,810 days, and if those interested in domestic and agricultural progress only put so much as one of their fingers to the wheel its existence can be prolonged to twice that number, if not made perpetual.

Many important events in the history of our country, and of mankind at large have transpired, since our last annual address to our patrons and readers, but none of those events seem more absorbing, or exercise a greater influence upon the social progress of the human race than the advent of the *base-ball* and the *roller-skink*.

These twin institutions can make or unmake even *fashion*, and demonstrate that the social fabric is not impelled and sustained by mind and brain, but by a lower combination of sound and muscle. It is true, that during the past year we have been successful in cultivating some wheat, a little corn, a moiety of tobacco, and a handful of fruit, but these tame and common-place products cannot be compared with the great *moral* progress of this enlightened age, as illustrated in the manipulations of the ball and rink.

Badinage aside, dear reader, we offer our congratulations to all, high or low, rich or poor, wise or otherwise; but do we duly appreciate our status as progressive American citizens? Are we more anxious to *appear*, than to *be*? Do we prefer to bow before the shrine of a *shadow*, rather than grasp the *substance*?

As a community, a nation, and a people, we are, and always have been signally blest, and at each annual cycle of Time's impetuous wheel, we probably *think* upon those blessings and feebly endeavor to impart them to others. But these may be only temporary impulses engendered for special occasions, whereas, they should *always* be "close denotements working from the heart that passion cannot rule." Do not let the new fangled elements of social progress obliterate the time-honored Christmas-tide, the spirit of which comprehends humanity. Before we "turn a new leaf," let us read the old one over again, else we may only grope again through another year.

Let "peace on earth, good will toward man," *always* be the predominant sentiment, then shall we practically know and feel the meaning of a happy Christmas-tide.

"POLYSOLVE."

And now comes a new remedy for the destruction of noxious insects, called the "*Poly-solve Preparations*"—the plural is used because there are *three* preparations, numbered *one, two and three*, designated by *red, blue and green* labels. Each has its special use. One pound of the preparation diluted with from one gallon to a gallon and a half of water, applied to the trunks, roots or branches, is said to destroy the insects, their larvae, or their eggs. The implements used to apply it are a whitewash brush, a steel brush,

or a basswood brush. The steel brush alone, perhaps, without any other preparation except a solution of soap would destroy plant-lice and bark-lice, if it were well rubbed on or in. This scrubbing with a stiff brush of any kind, has certainly some merit, but it would involve an immense amount of labor, where a large orchard of apple trees is infested, or a forest, a willow or locust grove.

We have before us a neatly executed 8vo. pamphlet of 24 pages (including covers), and 19 wood cuts illustrating branches, insects and implements used in applying the remedy, according to which, this remedy has been "Adopted by the Department of Public Parks of the City of New York." Brustlin, Sury & Co., are Sole Proprietors and Manufacturers," No. 11 Dey street, New York.

People now-a-days have such a horror of monopolies, that the sole proprietorship of anything deters many people from making a trial of such wares for fear of extortion; but, if a thing really has merit, that fact ought to be no objection to its patronage; moreover, it is generally conceded that the discoverer or inventor of any device, is entitled to due compensation. If it is a good thing, there will soon be a demand for it, and if a demand, then depots for its sale will soon follow. Thirty of the most common, and most noxious insects are briefly described, and the time, place and manner of application of the remedy detailed. An index of the scientific and common names of the insects is given, and also a list of the common names of the trees they infest.

To the question, "What is Polysolve?" the author of the pamphlet makes this reply; "The name 'Polysolve' has been applied by the inventor to a new and powerful SOLVANT AND DILUTANT, suitable for a variety of substances. When concentrated it forms a clear light yellow, oily, viscid neutral liquid. (Specific gravity 1.023.) It is soluble in alcohol, in all proportions, and is mixable with a small quantity, say one or two parts of water, without losing its oily character. With a large quantity of water it produces a clear or faintly opalescent, foamy solution, remarkable for its extreme affinity for water and penetrability. The chief property of 'Polysolve' is this, that it may be combined with relatively large quantities of a great variety of substances, which are powerful agents on organic matter, but could not heretofore be introduced for general use, on account of being either insufficiently soluble, or in other regards not easy to handle. Specially in agriculture and horticulture many chemicals have been long ago known to have properties for destroying scales, larvae and insects of every description, but their use has been hindered by the form in which they were brought on the market. Such chemicals which could not be dissolved in water, at any rate, are now brought to everybody's use in a soluble state by being prepared in Polysolve." That, and more to the same effect, is an answer to the question, "What is Polysolve?" Should the reader insist that that relates more especially to what polysolve does than to what it is, we confess he is a little of our way of thinking. Perhaps anything is Polysolve that acts as a "solvent and dilutant, although the name implies more. Under any circumstances, the insect-

ridden farmer, gardener or nurseryman, will care little what it is, provided it proves an unfailing antidote to insect depredations, and that fact can only be realized by making due trial of it. Perhaps the first step would be to send to the address above given for a copy of the pamphlet under review.

OUR CORRESPONDENTS AND CONTRIBUTORS.

Before the end of the present year of grace, we desire to return our sincere thanks to our correspondents and contributors (perhaps it is fortunate for us that the number is so limited, or we might not have had sufficient of the virtue of thankfulness to serve them all,) for the literary assistance they rendered us during the year that is now rapidly fading away; also for that which they could have rendered had they willed it, or had not forgotten it; as well as that which they now may wish they had rendered.

Ten quarto volumes (and six octavo) of the LANCASTER FARMER are now in existence, many of which have been carefully preserved and substantially bound, and will be transmitted to posterity as a epitome of the agricultural and horticultural history of Lancaster county; and the generations existing a hundred years hence, may be astonished at the paucity of the number of those who placed themselves on record as contributors to the agricultural literature of the "grand old county."

It always does our heart good when we pick up an ancient local journal, and find therein a goodly number of contributors, to talk again with them—as it were—face to face; no matter how common-place the subject, or how poor and humble they may have been. Perhaps when their productions were written they found no readers, no matter how true, how practical, and how common sense they may have been—indeed, some of the best writers the world ever produced, never found a respectable audience, until after their moldering bones had long mingled with the dust. With what an unerring prophecy it was announced nearly 1900 years ago, that "man hath honor, save in his own country and among his own kin." Notwithstanding all this, we desire to feel grateful for the help that has been rendered us, however small it may have been in the past—the future must take care of itself.

MAMMALS OF LANCASTER COUNTY.

In the "long, long ago," without a doubt, the deer, the bear, the panther and the wolf were local inhabitants of the territory now recognized as the county of Lancaster, but these have long since been driven before the march of civilization and improvement to regions far beyond its borders. Perhaps some sojourning octogenarian may still have a recollection of the presence of one or more of them, or of some "old settler," who may have been familiar with some of them in his early days.

The class MAMMALIA had probably always a limited existence here, excepting the ground-hog, the opossum, and the squirrel, which even now only requires to be "let alone" to insure their rapid increase. Before the advent of the white man the "Norway rat"

was probably altogether unknown, but it now has become localized and may legitimately be regarded as a native.

Of the smaller species of animals, belonging to other classes, and especially of the *Insecta*, there is a redundancy, and civilization and cultivation seem rather to increase their numbers than to diminish them. But whether this state of things existed when the dense primitive forests of Lancaster county were inhabited by the Redman and his animal contemporaries—the quadrupeds and birds—is a matter gravely to be doubted. The "Canada Lynx" or wild cat, has been shot in this county within the last twenty years, and it is barely possible that a very few individuals may still be found in the woody regions. Forty years ago a stray panther was seen, or supposed to have been seen, within the county; but it needed a further corroboration to redeem the assumption from passing into a mere myth, and the corroboration was never secured. Civilization has, however, vastly increased the numbers of a few mammals, especially of those called rats and mice. Domestic mammals, such for instance as the horse, the ox, the sheep and the pig, are of course not included in this list, because it is too manifest that they have been introduced and moreover are only found in a domestic state.

ORDER CARNARIA.

FAMILY I—CHEIROPTERA.

VESPERTILIO. *Lin.*

- noveboracensis. *Lin.* Red-Bat.
- pruinosa. *Say.* Hoary-Bat.
- carolinensis. *Geof.* Brown-Bat.
- subulatus(?) *Say.* Sharp-nosed Bat.

FAMILY II—INSECTIVORA.

SOREX. *Lin.*

- brevicaudus. *Say.* Shrew.

SCALOPS. *Cuc.*

- canadensis. *Cuc.* Mole.

CONDYLURA. *Ill.*

- eristata. *Ill.* Star-nose.

FAMILY III—CARNIVORA.

PROCYON. *Str.*

- lotor. *Lin.* Raccoon.

MUSTELA. *Lin.*

- lutreola. *Lin.* Mink.
- vulgairs. *Lin.* Weasel.
- erminea. *Lin.* Ermine.
- pennanti. *Erc.* Marten.

MEPHITIS. *Cuc.*

- americana. *Des.* Skunk.

LUTRA. *Brs.*

- brasiliensis. *Roy.* Otter.

CANIS. *Lin.*

- fulvus. *Des.* Red-Fox.
- cinereo-argentatus. *Gml.* Gray-Fox.

FELIS. *Lin.*

- canadensis. *Geof.* Wild-Cat.

FAMILY IV—MARSUPIALIA.

DIDELPHIS. *Lin.*

- virginiana. *Pen.* Opossum.

ORDER RODENTIA.

FAMILY I—CLAVICULATA.

FIBER. *Ill.*

- zibethicus. *Lin.* Musk-Rat.

ARVICOLA. *Leop.*

xanthognatus. *Leb.* Meadow Mouse.
 riparius. *Ord.* Short-tailed Mouse.

MUS. *Lin.*

decumanus. *Pal.* Common Rat.
 rattus.² *Lin.* Black Rat.
 musculus. *Lin.* Com. Mouse.
 agrarius. *Gml.* Field Mouse.

GERBILLUS. *Des.*

canadensis. *Des.* Jumping Mouse.

ARTOMYS. *Gml.*

monax. *Gml.* Ground Hog.

SCIURUS. *Gml.*

cinereus. *Lin.* Cat Squirrel.
 carolinensis. *Gln.* Gray Squirrel.
 hudsonius. *Frs.* Red Squirrel.
 niger(?) *Lin.* Black Squirrel.

TAMIAS.

striatus. *Kln.* Ground Squirrel.

PTEROMYS. *Ill.*

vulcella. *Lin.* Flying Squirrel.

FAMILY H—INCLAVICULATA.

LEPUS. *Lin.*

americanus.² *Lin.* Common Hare.

1. Very rare, if at all in existence in this county at the present time.

2. A specimen of this animal was shot in Martine township in 1870, and the skin, under the name of "Black Fox," was brought to us for identification, and we have never ceased to regret that we did not secure it for the museum of the Linnaean Society.

3. This animal is also becoming rare in this county, and a very few years may chronicle its total extinction.

4. This animal, according to authors, is very improperly called the *Rabbit*. It appears, however, that excepting the "English Rabbit," which has been introduced and domesticated here, we have not a true rabbit in this county, or even in North America.

"CARPET MOTHS."

Of course the term *moth* is used here in its general sense; for people regard everything as a moth that does the evil work of a moth, and yet it is very manifest that the different insects that do so much damage to carpets, furs and woollen fabrics in general, do not all belong to the (scientifically restricted) moth family or families; nevertheless, all these depredators pass the longer periods of their lives in a larve, or worm state, and it is during this period entirely that they do their destructive work, and it is also during this period that remedies for their expulsion or extermination can be most effectively applied. The few that are, or by any possibility can be destroyed, after their final evolution to the imago or winged state, amounts to comparatively little and may amount to nothing. If female insects are destroyed before they have been fertilized, or before they have deposited their eggs, it means something, but if not until before oviposition it means nothing; because, after that act, and without being able to do further injury, they soon die of their own accord.

There are various substances, either of which will destroy carpet-moths, if the remedies are intelligently and perseveringly applied. Coarse linen or cotton cloths, thoroughly saturated with a strong solution of alum,

or camphor, or with coal oil, kerosene, benzine, crocote, or a decoction of Cayenne pepper, or tobacco; and these saturated cloths laid under the infested parts of the carpet will be an effectual extinguisher, but as these substances are volatile they need to be frequently renewed. As these insects usually work along the edges of the carpet, if before the carpet is laid the floor be thoroughly painted with any of these remedies, it will prevent them from making a lodgment there; saturated cloths, however, are better, because they retain the antidote longest. None of the carpet insects are very active in their larva states, nor do they make any rapid effort to escape, hence they are accessible at all times. There is a species of "Silver-tail" (*Leptomyia*), sometimes in damp and dark places, that are very active, but these are not very destructive to carpets.

All the moths that infest carpets are very small insects, the largest of them in their imago state, scarcely measuring eight-tenths of an inch from "tip to tip" of their expanded wings, and many of the species are supposed to have been introduced from Europe. The larvae of those that belong to the true moth family live in small cylindrical cocoons made of fine white silk, and covered on the outside with small fibres, granules and shreds of the material upon which they are feeding. These little cocoons are open at each end, and through the posterior end the little worm casts its granular feces, the head and two or three segments of the body protruding from the anterior end, when they are at their destructive work. They are not as readily affected by remedies as those that construct no cocoon; but still perseverance in the remedies we mentioned, will finally overcome them. The "clothes-moth" (*Tinea vestimentalis*) some times gets into carpet, especially fine ingrained carpets. "The true "carpet" or "tapestry moth" is the *Tinea tapetzella*, and for a long time no other insect was supposed to infest carpets. The "hair-moth" (*Tinea crinella*) has also been found in Brussels carpets, but it is more frequently found in the hair stuffings of furniture, carriages, sleighs, etc. The *Tinea pellionella* confines itself mainly to the different kinds of fur, and hence its name "fur-moth;" but as we happen to know from experience the members of this moth family can adapt themselves to varied circumstances, there is no reason why this latter species may not also be occasionally found in carpets. These moths, including the "grain-moth," (*Tinea granella*) have been known as pernicious destroyers for very many years, some of them away back in the times of Pliny and Columella; but perhaps the most destructive enemy to the carpet is of recent date, and belongs to a very different order of insects, although people generally include it among the true moths. This is a Coleopterous insect, and may be more properly be called a "Carpet-beetle," (*Anthericus scrutatorius*). It belongs to the family DERMESIDÆ, which includes the "Bacon-beetles," "B me-beetles," "Pelfry-beetles," "Museum-beetles," etc., etc. It has been especially destructive to carpets in New York and the Eastern States, and has also appeared in several localities in Pennsylvania, and perhaps is even in our own county.

Its pernicious cognomen the "museum-beetle" (*Anthericus varius*) is a most prolific and destructive insect, and when it once gets a lodgment in museum specimens, and particularly in a cabinet of insects, it is impossible to destroy or expel it, without the greatest vigilance and perseverance. Its larva is a small brownish hairy worm, about a quarter of an inch long and has six anterior short feet, and seems to glide along in short jerks, rather than run or walk. The beetle is scarcely the eighth of an inch long, and about half as broad as long, and moves similar to the larva. The color is mottled gray and brown. The antennæ are short and clubbed, and when disturbed it is apt to feign death, but soon attempts to scamper off. There is not sufficient difference between the carpet and museum beetles to necessitate a particular notice of it.

The carpet-beetle is usually found along and under the edges of the carpet, and there is where the remedies are to be applied. In the summer it flies abroad, and is often found in the flowers of different plants, especially those that are very polioaceous.

But carpets are subject to the attacks of still another insect, which, by way of distinction may be named the "carpet-maggot," or "carpet-fly." Although, perhaps, not as formidable as the afore named species; still, on two or three occasions, it has been found under carpets in the City of Lancaster, and has also damaged them, particularly on one occasion. This insect belongs to the dipterous order, which includes all the various two-winged flies; and it has a remote alliance to the domestic house-fly. The larva is a slender white worm, with a light brown one-shaded head. (See Proc. Lin. Soc. in this number of the FARMER.) It is the *Scenopius pallipes*, described by Mr. Say, more than half a century ago, although it is probable he knew nothing about its larva or its habits. The fly itself is of a blackish color, with a metallic lustre, and expands less than half an inch. We think this insect would succumb to any of the remedies we have mentioned more readily than any of the others we have mentioned—indeed we think that boiling water would be sufficient to destroy it, although we found it lived longer in alcohol than we supposed it would from its apparently delicate organization. It will be thus seen, that "a poor man's labor is never done."

THE PEACH BORER.

A Delaware man sends the New England *Homestead* some heretical views as to the proper way to fight this pest. "I am very much opposed," he writes, "to digging out the grub with a knife. I believe it is a great injury to the tree. I prefer to plow the earth away from the trees in the spring after they have blossomed. Plow as near as convenient with a two-horse plow, and finish with a single horse plow, taking care to run a shallow furrow. With a hoe draw away what earth remains about the trunks and leave the trunks exposed to the sun. The earth thus drawn away contains the eggs of the grub. Scatter wood ashes around the trees. It will keep the trees in good healthy condition and the grubs do not like it. A neighbor who digs out the grub with a knife always has a poor crop, while my method gives good crops."

The foregoing paragraph clipped from the *Weekly Press*, is something more than hereti-

cal, it is *partially absent*. We do not deny that the "neighbor who digs out the grub with a knife always has a poor crop," nor yet that the writers' "method gives good crops," for we know nothing about it. But this we know: the "Peach-tree borer" does not deposit its eggs in the spring, much less does it deposit them in the soil around the tree. Nor is the grub in the soil in the spring, nor any other time, it is in the base of the tree itself. Neither plowing with a one or a two-horse plow, nor yet drawing away the soil with a hoe will dislodge it. It would be pretty safe to assert that that "Delaware man" did not know what a "peach borer" was, when he wrote to the *New England Housestead*. It is much more dangerous to expose the lower part of the trunk and roots of the peach tree to the hot sun during summer, than to let them remain covered; because, when the proper time came for the insect to deposit its eggs (July and August) the parent insect would have free access to them. And yet, there is a possibility that the eggs of the Peach-tree borer, or even the newly hatched grubs would suffer, if their vitality was not destroyed by the hot rays of the sun, but that could not occur in the spring, because the insect does not deposit them in the spring. Doubtless, advanced specimens of the "Peach-tree borer" (*Epicia crinita*) may be found in the latter part of June; but we have always found them most frequently in July and August, and on the buckwheat when it was in bloom. It is a Lepidopterous insect, (moth) but, in company with various species of Hymenoptera (wasps) and other small moths, we have found both male and female plentifully on the buckwheat bloom.

Various kinds of protection to the base of the tree have been recommended to prevent the moth from depositing her eggs there, but when the grub is once located, there seems to be no other remedy but to cut them out carefully; the injury the tree may sustain can surely not be worse than to let them remain. Attempting to destroy this borer with a plow, is akin to plowing under the "canker worm." People are too prone to look for some easy wholesale method to destroy insects in cases where a careful and persevering manual effort is required and that alone.

EXCERPTS.

IN heating butter always use the back of your spoon.

POUR coal oil in the entrance of ants nests; it will completely destroy them.

PAINT splashed upon window-glass can be easily removed by a hot solution of soda.

FISH may be scaled much easier by dipping them into boiling water about a minute.

PICKLES or vinegar will not keep in a jar that has ever had any kind of grease in it.

WHEN soaking salt fish before cooking, add a little vinegar to the water; it improves the fish.

MILK which is slightly turned or changed may be sweetened and rendered fit for use again by stirring in a little soda.

TO SCOUR knives easily mix a small quantity of baking soda with your brick-dust, and see if your knives do not polish better.

SALT will curdle new milk; hence, in pre-

paring milk porridge, gravies, etc., the salt should not be added until the dish is prepared.

CREAM juices sunburn on some complexions, lemon juice is best on others, and cold water suits still others best.

KEROSENE lamps if kept full will never explode, as there is then no room in the lamp for the accumulation of explosive gas.

PAINT spots may be removed from any kind of clothing by saturating with equal parts of turpentine and spirits of ammonia.

THE best of a potato is just under the skin; therefore, pare very thin. Cover with cold water and boil gently till done.

THE excellence of baked potatoes depends upon eating them as soon as done, and not before. They are worthless till cooked, and dry rapidly as soon as baked through.

A MONSTROUS earthworm—six feet five inches in length and proportionately thick—has been sent from Cape Colony, Africa, to the Royal Zoological Society of England.

THE following rules are commonplace enough, but we can assure our readers that if they will observe every one of the rules they will be anything but commonplace men and women:

Don't stop to tell stories in business hours. If you have a place of business be found there when wanted.

No man can get rich sitting around stores and saloons.

Have order, system, regularity, and also promptness.

Do not meddle with business you know nothing of.

Pay as you go.

A man of honor respects his word as he does his bond.

Help others, but never give what you can not afford to, simply because it is fashionable to give.

Learn to think and act for yourself.

TO REMOVE white lead paint from worsted goods of any kind scour the spots with a nail brush and sponge dipped in spirits of turpentine. The process is tedious but sure.

WHEN one has had a fever and the hair is falling off, take a teaspoon of sage, steep in a quart of soft water, strain it off into a tight bottle. Sponge the head with the tea frequently, wetting the roots of the hair.

FOR "greasing" the griddle, cut a white turnip in halves, and rub the griddle with it. It causes no smoke, smell, taste or adhesion, and is better than butter or grease.

FISH may as well be sealed, if desired, before packing down in salt, though in that case do not scald them. Salt fish are quickest and best freshened by soaking in sour milk.

LEMONS will keep better and fresher in water, than under any other conditions. Put in a crock and covered with water, they can be preserved in winter for two or three months.

MANY experienced house-keepers, in order to prevent the formation of a crust in the tea kettle, keep an oyster shell in it. The shell attracts all the stony particles to itself.

If a rat or mouse get into your pantry, stuff in its hole a rag saturated with a solution of cayenne pepper, and no rat or mouse

will touch the rag for the purpose of opening a communication with a depot of supplies.

DON'T waste your time scouring your bread pans; bread never bakes as well in a bright tin. Indeed, the best bread pans, if one can afford to have them made, are oblong ones made of Russia sheet-iron.

FLOWERS may be kept very fresh over night if they are excluded entirely from the air. To do this wet them thoroughly, put in a damp box, and cover with wet raw cotton or wet newspaper, then place in a cool spot.

SCALE buns may be made to taste as nicely as when fresh if they are dipped a moment or so in cold water, then put into a hot oven for five or ten minutes. They will turn out as light and crisp as when first baked.

BEESWAX and salt will make your rusty flat irons as clean and smooth as glass. Tie a lump of wax in a rag and keep it for that purpose. When the irons are hot rub them first with the wax rag, then scour with a paper or cloth sprinkled with salt.

WHEN coffee beans are placed upon a hot plate, the flavor arising is one of the most effective and and at the same time agreeable disinfectants. If no heat is obtainable, even the spreading of ground coffee on the object to be disinfected is most satisfactory.

HARTSHORN applied to the stings of poisonous insects will allay the pain and stop the swelling, or apply oil of sassafras, which is better. Bee-stings should be treated in this way.

STEEL knives which are not in general use may be kept from rusting if they are dipped in a strong solution of soda, one part water to four of soda; then wipe dry, roll in flannel and keep in a dry place.

MOTHS will infest carpets in warm rooms in winter as well as in summer. A sure way to remove them, says the *Ohio Farmer*, is to pour strong alum water upon the floor to the distance of half a yard around the edge, before the carpets are laid down. When sweeping, once in a while sprinkle dry salt upon the carpet.

THE *Scientific American* says, if a bottle of the oil of pennyroyal is left uncorked in a room at night, not a mosquito, or any other bloodsucker, will be found there in the morning. Mix potash with powdered meal, and throw it into the rat-holes of a cellar, and the rats will depart.

ELECTRIC INSECTS.—General Davis, of the British army, who was a famous insect collector, once picked up a wheel-bug in the West India Island, and received a blow that paralyzed his arm for some time. As he shook the insect off he noticed, where it had stood on his hand, six red marks, the impression of its feet. Kirby and Spence also refer to this peculiarity of the insect, and other naturalists have received shocks from certain of the luminous beetles. Captain Blakely took up an unknown caterpillar, and immediately received such a shock that his entire right side became paralyzed and for a long time he was dangerously ill.

THE DISH RAG.—Whatever is worth doing is worth doing well. I have known women who keep all their best and most comfortable

rooms closed from the use of the family, for fear of having something soiled, and who would make you feel most unwelcome were you to leave a print of mud on the door, or a scratch on the wall or furniture, yet they will use, or permit to be used, dish-rags for weeks at a time, without washing or boiling them. To say the least, it is not pleasant to think of eating of dishes washed with such a cloth. Next to having food pure and free from all dirt, is the importance of having clean dishes, and above all, bright knives and spoons. Carelessness in such things among servants is very annoying. Occasionally one finds help that is particular in this regard as in all others, who are appreciated by all good house-keepers.

CONTRIBUTIONS.

SHOELESS HORSES.

BROOKVILLE, Ohio, Dec. 8, 1884.

EDITOR LANCASTER FARMER:—Sir: I see several articles in the last issue of the FARMER on shoeless horses that meets my idea of the matter under consideration. From the experience I have had with shoeless horses I am satisfied that horses travel much easier without shoes than with them. Shoes on horses makes the growth of the feet abnormal, both anatomically and physiologically. On the principle of the "survival of the fittest" great benefit would ensue from breeding horses from such as never had shoes on them, as by use organs are perfected and enlarged; by use the hoof becomes hard and tough. By shoeing, and consequent disuse, it becomes tender and brittle; by disuse four of the horse's toes and fingers have disappeared, except rudiments of the first and third (splints). Disuse of these has come of altered environments of the animal in past ages. By use the horny or outer substance of the foot becomes very sharp and hard. After a horse has had shoes on for a while he is unfit to travel for a long time afterwards without them. In this country nearly every public road is piked with either glacial or alluvial gravel; this gravel is composed of limestone pebbles and sand; on these roads my horses travel a good deal without any shoes. Although I keep from five to seven horses and colts on my farm, yet I have not had any shoeing done for eight or ten years. Formerly I have drove them considerably, professionally, without any lameness. It is true, however, when one begins to use colts they should be used very moderately for a year or two, or until the hoofs become hard and tough, particularly when the roads have been muddy for some time, even if one has to desist from using them for some time it will pay in the end, for during a horse's lifetime there is considerably saved by not shoeing. A horse of some age, that never had any shoes on, travels over rough and icy roads much better than one would anticipate that had never used them in that way.

For many years the prices of farmers' produce has not been so low as now, yet we pay from one to two per cent. tax on all we are worth. Wheat, 70 cents; corn, 30 cents; oats, 25 cents; fat hogs and cattle, 4 cents, gross. Tobacco hanging in the sheds yet.

G.

ESSAYS.

ENTOMOLOGICAL ESSAY.

[The following annual address, delivered before the *Ontario Entomological Society*, may contain much that is interesting to farmers and others in this and adjacent localities, and this must be regarded as a sufficient apology for inserting it here.—Ed.]

Mr. William Saunders, the President, delivered his annual address:

"The working entomologist," he said "ever on the watch and ready to note the many items of interest in connection with insect life, will seldom pass a season without finding many facts worthy of interest which, if not of general interest, are at least of local importance." He said the year 1884 had not been marked by any unusual invasion of destructive insects as affecting the country as a whole and exciting general comment, yet many localities have suffered either from the unusual development of familiar forms of insect life or from the introduction of new pests. Early in the year some excitement was caused in the Ottawa district by the appearance of a very destructive caterpillar in great numbers in the clover fields, which rapidly devoured the foliage. It was at first supposed to be the veritable army worm, but proved to be a very different animal. On May 23 the speaker examined some of the affected fields, accompanied by the Vice President and Mr. W. H. Harrington. The caterpillars were very numerous, and much of the clover had been seriously injured by them. They were a species of cut-worm, the progeny of a moth, belonging probably to the genus *Agrotis*. The larva measured $1\frac{1}{2}$ to $1\frac{1}{4}$ inches in length. At the time had a dark yellowish brown head with a black stripe down the front, and a black body with two yellowish stripes on each side, the upper one composed of streaks and dots of yellow, the lower, which was near the under surface, formed of two crinkled yellow lines which approached each other on the anterior segments, and diverged posteriorly. On the upper part of the second segment was a black horny shield; the breathing holes on the sides were also surrounded with black. At the time of the visit the then almost full-grown caterpillars were affected with a singular disease of a fungoid character, which was destroying them very rapidly, the diseased insects after death remaining extended on the leaves of clover or blades of grass in a natural position, but somewhat discolored. The disease spread rapidly, and was no doubt contagious. Of 50 or 60 specimens collected by the speaker for rearing all died, only one surviving the chrysalis state, and this did not mature a perfect insect.

A few days later complaints were made to the speaker of the depredations of the caterpillar of another of our cut worms, a species usually very common, the larva of a moth known to entomologists as *Hobsonia Activa*, which are very disastrous to corn and other crops. A few days matured swarms of these insects, when the caterpillars that had escaped disease and enemies buried themselves in the ground, changed to chrysalids, which subsequently produced winged moths.

Every season these cut worms are a source of great annoyance to gardeners and farmers,

and inflict enormous losses. They receive the name from their habit of cutting off near the base tender and succulent plants, and under the designation of cut worms are included a number of species having similar habits, belonging chiefly to the genera *Agrotis*, *Hadena* and *Manes*, some of which possess striking points of difference in the moth state, although they much resemble each other in the caterpillar condition. The eggs are laid by the parent moth in the latter part of summer, sometimes on the ground about the roots of grass and other plants, and sometimes on the leaves near the ground. Within two or three weeks young larvae hatch from the eggs, and by the time autumn sets in the caterpillars have attained the length of half an inch or more, when they burrow into the ground deep enough to protect them from injury by the severe frost, and there remain in a torpid condition all winter. The warmth of spring arouses them to activity, when they seek the surface of the ground, feeding at night upon almost any green thing they met with, eating with almost insatiable appetites as they approach maturity, and burying themselves during the day under the surface of the ground in the neighborhood of their depredations. When full grown they burrow in the earth to varying depths, and there change to chrysalids, from which the mature insects escape in two or three weeks. These insects are harmful only when in the larval condition. As remedies, showing the plants with Paris green and water, sprinkling them with air-sacked lime or powdered hellebore, or strewing lime or soot or mixtures of these substances around the plants on the surface of the ground, have all been recommended, and in some cases have been found useful. Plants have also been protected from injury by these caterpillars by strewing around them a little dry sand impregnated with coal oil in the proportion of a teaspoonful of coal oil to a pailful of sand thoroughly mixed; the application should be renewed every week. The method of warding off the attacks of injurious insects by the use of odorous substances repugnant to them, is rapidly growing in favor on account of the success attending its use. This coal oil remedy for cut worms is said to be very effectual, and the cost of the application being so very trifling, its usefulness should be extensively tested. It is manifest that none of these measures are feasible where field crops are invaded, as the area would be too great for any one to undertake to cover with such material. In such cases nature has provided efficient remedies to reduce their numbers. Besides the disease to which he had reference, there are armies of parasitic insects which prey on them. Hence it very often occurs that an insect which is very abundant one season is very scarce the next.

These cut worms are widely disseminated. Early in July he (the speaker) received specimens from Manitoba from the Deputy Minister of Agriculture of a caterpillar belonging to this group, which was found to be seriously injuring vegetables, and in some localities oats and barley also. This was a grayish brown caterpillar with a semi-transparent skin, a brown horny head and a shield of the same character on the upper part of the second segment. There was a pale line down the

back, two similar lines along each side, and a white band lower down close to the under surface. One of them was reared through all its stages, and produced a neat and rather pretty moth.

That destructive pest, the wheat midge, which has entailed so much loss on our farmers in years gone by, has prevailed during the past season to a considerable extent throughout the western part of the Province. Alarming reports were sent to the speaker from various districts, and on the 16th of July a tour of inspection was undertaken for the purpose of ascertaining the extent of the injury. During a drive of over 100 miles the wheat fields were examined and midge was found generally distributed but nowhere in any very great numbers. Some varieties of wheat were much more injured than others. That known as Michigan Amber and Egyptian seemed to suffer much. Among the varieties almost free from this trouble was the Democrat wheat. The selection of some of the best of the so-called midge-proof varieties for seed, the kernels of which harden so early in the season that the larvæ is unable to feed on them, is assuredly one of the most practicable methods of lessening the depredations of this troublesome insect.

The Colorado potato beetle is still further extending its ravages. Having reached the Atlantic seaboard in the East, its further progress in that direction has been arrested. It is now extending its domain over the fertile fields of the Northwest. Specimens had been sent to him from Portage la Prairie, where they are said to be confined to the neighborhood of the town, and having been vigorously assailed with Paris green, it is hoped they have been pretty well exterminated. Through the kindness of Acton Burrows, the efficient deputy Minister of Agriculture in Manitoba, he had received information of the appearance of the pest in the counties of Manchester and Dufferin, in the same province, but in none of these localities has the insect yet made much headway.

Grape growers in some sections of Ontario suffered much early in the season from injuries caused by the grapevine flea, beetle, "*Graptoleira Chalybea*." This insect, which is about three-twentieths of an inch long, and varies in color from a steel blue to green, passes the winter in the perfect state, hibernating under dead leaves and other rubbish, and awakening from its long slumber in early spring, proceeds to satisfy its voracious appetite by consuming the tender buds of the grapevine, just as they are swelling. These insects have been so plentiful in some vineyards that the crop has been almost destroyed. Where they prove troublesome they may be collected by spreading sheets on the ground under the vines and jarring the canes early in the morning, when the beetles are in a torpid condition, or they may be poisoned by syringing the swelling buds with Paris green and water.

The plum curculio, *Conotrachelus ummifer*, continues its mischievous work in most parts of the Province where plums are grown, and the labor attending the jarring of the trees for the purpose of capturing and killing the insect prevents many from undertaking the cultivation of this useful fruit. From the evidence

thus far obtained it would appear that the remedy which has been found so efficacious in subduing the Colding moth of the apple, namely, Paris green and water, in the proportion of a teaspoonful of the poison to a pailful of water, will also protect the plum crop from the ravages of the curculio. This remedy should be extensively tried by thoroughly syringing the trees with it as soon as the fruit has set, and repeating the application in a few days should rain occur to wash it off. Should this remedy prove uniformly successful a great stimulus will be given to plum culture. "During the past season the plum crop on my own grounds," said Mr. Saunders, "was a failure, the trees having had but very few blossoms. In the absence of plums the curculios deposited their eggs freely on the pears, manifesting a special fondness for Clapp's Favorite. Although I watched them carefully, I failed to find a single example where the insect matured on this fruit. The only effect observed was a slight disfigurement in the form of the fruit and the production of a hard spot where the incision was made. While collecting moths at sugar early in the season I observed one evening about 9 o'clock among the insects which came to sip the sweets two specimens of the plum curculio. I captured one of them, the other fell to the ground before I could secure it. Experiments made by me some years ago proved that this insect is active at night as well as in daylight, but this is the only instance I have known of its being attracted to sugar at night.

From one locality complaints reached me about the middle of June last of the abundance of a spiny caterpillar feeding on currant bushes which my correspondent supposed to be a new currant worm. Specimens were forwarded and proved to be the caterpillar of the gray comma butterfly *Grapta pragne*. This insect may be found almost any season in limited numbers on the wild gooseberry and currant bushes in open woods and occasionally on the cultivated varieties, but this is the first instance to my knowledge where the insect has appeared in sufficient numbers to cause injury. They are so very subject to parasites that it is not at all likely they will ever prove generally destructive, syringing the bushes with Paris green and water or dusting the foliage with powdered hellebore will soon make an end of them.

In the neighborhood of Drummondville, several acres of red raspberries were stripped of their foliage by the larva of the raspberry saw-fly *Selandria rubi*. Reports of injury from this pest have also been received from several other localities. It is a green worm which is so exactly of the color of the young foliage it feeds on that it frequently escapes detection. When examined this larva is found to much resemble that well-known pest the currant worm, but it has no black dots. If allowed to pursue their course they soon riddle the leaves, leaving little more than a net-work of the coarser veins. An application of the hellebore mixed with water in the proportion of an ounce of the powder to a pailful of water speedily destroys them.

A new clover insect has recently invaded our Province which promises to be troublesome. It is a small curculio known to Entomologists as punctured clover leaf weevil

Phytomyzus punctatus. It is said to have been introduced from Europe within the past few years. The late Dr. LeConte in a work published in 1876 reports having received one specimen from Canada, but at that time nothing seemed to have been known of its habits. In 1881 Prof. Riley published in the *American Naturalist* an account of the injury done to clover fields in Yates county, New York, by this insect; in one instance in a patch of two acres scarcely a whole leaf remained. The beetle is about 2-5 of an inch long of a dark brown color, marked with dull yellow and has its wing cases thickly punctured. Each female is said to deposit from 200 to 300 eggs, which are sometimes laid on the surface of the leaf stem but more frequently thrust into the interior of the older stems. The young larvæ may be found as early as in May, but being small they do not usually attract notice until almost a month later. At first they feed among the folded young leaves or attached to the under side of a leaf. When approaching full growth they feed chiefly on the margins of the leaves, into which they eat irregular holes. At this period they are not easily seen, as they relax their hold and drop suddenly to the ground when approached; moreover they feed chiefly during the night and hide in the day time among the roots and stalks of the plants. When full grown the larva spins a small cocoon, which is usually placed a little below the surface of the ground, in which it changes to a chrysalis; about three weeks later the beetle escapes. From observations which have been made on this insect at the Department of Agriculture, in Washington, the average period required from the time of the depositing of the egg to the escape of the mature beetle is three and one-third months, hence, in most localities, there will be two broods during the summer. Mr. A. H. Kilman, one of our members residing in Ridgeway, was the first to report the occurrence of this pest in Ontario which, he says, was wafted to our shores by prevailing east winds about the 10th of August last. On this date the beetles appeared on the opposite side of Lake Erie, in Buffalo, in such multitudes that thousands of them were crushed on the pavements by the feet of passers by. Mr. Kilman says: "I picked them from the fences and sidewalks, and found them in the grass in my lawn; I am of opinion that they will go into winter quarters here and open up a lively campaign in the spring. Whatever the sequel may show I fear that these invaders will prove of better staying qualities than those who crossed the border in '66 and turned to the right about at Ridgeway because Canada was not the 'clover patch' they were looking for."

As the larvæ will be found most numerous in the latter part of May or early in June, it is recommended that the clover be heavily rolled at that time for the purpose of destroying them. If badly infested fields were ploughed about this period the destruction of the insects would be still more certain.

Early in the summer alarming accounts were received of another insect injuring the maple trees, especially the shade trees on streets and avenues. This was a species of *Coccis* or bark house, *Pulmonaria innumabilis*, which forms brown scales on the branches

from under one end of which there protrudes a cotton-like substance forming a tuft about four times as large as the scale, in which the eggs of the insect are lodged. In a short time there issue from this egg-nest a multitude of minute yellowish white lice which distribute themselves over the branches and locating on the succulent portions pierce the tender bark with their sharp beaks and subsist upon the sap. These young lice soon become stationary, gradually increase in size and reach maturity towards the end of the season. They chiefly affect the under side of the limbs and branches.

Remedies.—The branches may be rubbed with a stiff brush or broom which will dislodge many of the insects and then washed with a liquid made of soap, diluted with lye or solution of washing soda, or with an emulsion of coal oil made as follows: "Take one pint of coal oil and agitate vigorously with an equal quantity of milk until the compound assumes a creamy appearance, when it should be diluted with about ten times its bulk of water and applied with a brush or syringe.

This pest has occurred in many localities in Western Ontario, also in Michigan, New York and Pennsylvania.

That cosmopolitan butterfly known as the painted lady *Pieris caroli* has been very abundant the past season in most of the Northern United States. From Mr. Barrows I learn that in Manitoba the larvæ appeared in such countless hosts as to cause much alarm, and reports were current of these having injured some of the growing crops. This, however, is improbable, as it devotes its attention mainly to devouring thistles; occasionally specimens have been found feeding on mallow, holly hock, wild sunflower, burdock and several other plants, none of which, however, are of any economic value.

A lively interest is being awakened in reference to the insects inhabiting our Northwest Territories and British Columbia, of which we as yet know comparatively little. Captain Gamble Geddes, of Toronto, has made excursions to several of these distant points and brought home many varieties. From the Moose Mountain district in the Province of Assiniboia a number of interesting specimens have been received, collected by Miss F. M. Pierce. Prof. Pantou, of Winnipeg, has been collecting in that neighborhood, and in British Columbia we have a most efficient helper in the person of Mr. G. W. Taylor, who has recently published in the *Canadian Entomologist* lists of some of his captures in the neighborhood of Victoria. It is sincerely hoped that other observers will be induced to labor in these most interesting and promising fields.

Continued efforts are being made by our Society to obtain and disseminate correct information, especially in reference to those insects injurious to agriculture. With this in view we have lately issued a number of blank forms for describing insects, which will be sent to any one desiring them on application to either of the officers in London. By this means we hope to secure fuller details and more uniform descriptions of insect pests, so that they may be more readily determined. The officers and members of the Council have also embraced every opportunity afforded them of visiting localities specially affected

by destructive insects and have endeavored to disseminate among the sufferers practical information in regard to the most effective remedies for such evils. The demand for our annual reports from all parts of the world has much increased since the publication last year of the general index. It is a matter of regret that the issue of several of the earlier reports is entirely exhausted, and there is now no means of supplying the demand. Our monthly journal, now in the sixteenth year of its existence, continues also to grow in public favor.

During the past year reports of great value in reference to destructive insects have been published by the Department of Agriculture at Washington, under the able direction of Prof. C. V. Riley. A most excellent and voluminous report from the pen of Prof. J. A. Lintner, State Entomologist, has been printed and distributed by the State of New York. Much useful work has also been accomplished in the same direction by Prof. A. S. Forbes, State Entomologist of Illinois, by Prof. Herbert Osborn, of the Iowa Agricultural College, and others. Many additional parts have appeared of that superbly illustrated work on North American butterflies by Mr. W. H. Edwards; the same talented author has also in press a revised catalogue of the butterflies of North America. The recent meeting of the Entomological Club of the American Association for the advancement of science held in Philadelphia was one of unusual interest, most of the leading entomologists on this continent being present. A full report of the proceedings will shortly appear in our Society's publications.

In concluding, permit me to urge upon you all renewed diligence in your studies of insect life; be patient and faithful in observing, be prompt in publishing the results of your observations. The field we labor in is so vast that life is too short to permit any of us to do much, especially when the limited time is taxed by other pressing engagements. Nevertheless, let us do what we can to unravel the mysteries relating to these much-despised atoms of existence; the opportunity is ever before us

"Ten thousand forms, ten thousand different tribes
People the blaze of day."

And when the brightness of the sunshine has faded there are tribes equally numerous and attractive which rise not from their couch until their more obtrusive brethren have retired to rest. Whether it is ours to employ portions of the night or the day in this charming occupation we shall not in either case fail to find manifested in the instincts with which these tiny creatures are endowed manifold evidence of the wisdom and goodness of the great Author of Life.

*THE INFLUENCE OF AGRICULTURAL SOCIETIES.

More than one-half the population and three-fourths of the capital of our country are embarked in agricultural pursuits. Hence the importance of organized societies amongst the tillers of the soil to promote their interest. Less than one hundred years have elapsed since the first society of this character had origin in this country, especially for its ad-

vancement. To-day we find them in every agricultural and horticultural community, peopled by progressive men, who know their duty to themselves and posterity, treasure up every example, every hint, every improvement, every suggestion that supports the foundation of a nation's greatness. For without production from the soil our manufacturers, our commerce, our wealth and happiness as a people would crumble to the dust.

The object of our modern agricultural societies is not selfishness. It is all intended for the public good. What can be more praiseworthy amongst men, than to give their time and talents to promote production? The means of improving the happiness of a people, for without an abundance of food and raiment, and shelter and comfort, man is but a drudge. Intelligent farmers, meeting together for the purpose of exchanging opinions, about agricultural matters, has a tendency to liberal views, not only in raising and disposing of produce, but influencing all classes of people with better ideas of the value of the farming community. Besides, man is a social being and needs improvement and amusement of some kind, and where can he find it more congenial, and worthy than in a society of men, discussing the benefits resulting to the people of a liberal and improved agricultural knowledge.

Agriculture is as old as time, and manufactures and commerce coeval with the race. It were idle to suppose that one could exist without the others. They naturally depend upon each other, where one prospers all prosper. Their influence upon the prosperity of nations in wealth, civilization and intelligence has been felt in every country whose inhabitants have extensively engaged in their development. To illustrate this we need only refer to the history of the most distinguished countries of ancient and modern times.

A people do not owe success solely to natural advantages, great as they may be, we owe much of our agricultural advantages to the genius of popular government, and to our industry in clearing away ambiguities to the enterprise and public spirit of public improvements in the improvement of natural channels for purposes of trade and intercourse.

Men associate together for mutual improvement, in the various callings in life in which they are engaged, be it agriculture, manufactures, mining, commerce, or education.

Successful agriculture has a powerful effect upon the social, educational and political condition of a nation. Its effects are felt in every varying branch of industry into which society is divided.

Adam Smith called the English a nation of shopkeepers, and as shopkeepers to succeed in business, need civility and sociability it improves by the intercourse of trade. So with the modern agricultural societies, they bring the farmers together, which improves their social habits as well as more enlarged views of the condition of things in the world.

An exclusive nation is like a man deprived of his liberty, and locked up in a dungeon, will keep what it has, and will neither exchange commodities, nor valuable information, with other nations for the mutual improvement of all. Men cultivate their acres

*Read before the Lancaster County Agricultural and Horticultural Society, December 1, 1881, by C. L. Hunsacker, Esq.

well, because it pays well, that stimulates self-interest, which is a ruling passion among men. It urges him to brave the billows of the deep, the tomahawk of the savage, the knife of the barbarian. It makes him heedless of the piercing rays of a tropical sun, or the penetrating cold of the polar regions.

Agriculture and manufactures furnish the articles upon which commerce flourishes. In hoary antiquity the Egyptians were characterized for wealth and intelligence. They were a highly agricultural and commercial people, and carried the diversion of labor to a state of perfection scarcely equalled in times. The commercial spirit which immortalized Alexandria in Egypt gave renown to Carthage, Sidon and Tyre, and Venice, Holland and England in more recent times.

During the middle, or dark ages, agriculture languished in many of the kingdoms and empires of the old world, owing to the ignorance of the people, the rapacity of the nobles, and the insecurity of property. Cultivation of the earth was not understood as it is in our times. Implements to stir the ground were few and wretched, manures were neglected, roads and bridges and the means of conveyance almost unknown. Our agricultural products in variety surpass computation, and in quality defy the imagination. Is it, therefore, any wonder that progressive farmers acknowledge the benefits resulting from associations amongst them? As we are a thinking, inventive people, full of enterprise and public spirit; and as long as we are a progressive, intelligent people it were idle to suppose that we can not influence the advancement of the noble calling of farming by associating together and examine practical matters relating to it.

Let us consider the multitude of mankind on the globe, and see how few of this vast assembly have the patience and endurance to examine and industriously apply themselves to master any subject, or think long and carefully to reach just conclusions upon any proposition. And yet notwithstanding these defects of the popular mind, the amount of practical knowledge possessed by our people in the latter half of the nineteenth century is no trifling matter, as is exemplified in the agricultural history of our country.

A SINGULAR PHENOMENON.

At the May meeting of this society attention was incidentally called by our President to the whitening of the varnished woodwork of the doors, windows, etc., of the house of Dr. M. L. Herr, near his residence, during the heavy thunder-storm of the night of May 18. I found also that some chairs which had been left out during the same night in our school campus were whitened in a similar manner.

A very natural inquiry was, what was the cause of this singular phenomenon. Varnished surfaces, as is well known, are whitened by heat, as the white spots and rings frequently seen on tables in restaurants and dining-rooms abundantly illustrate, but it did not at first occur to me that the phenomenon under consideration might be due to the same cause. In order to answer the question more intelligently, I made a series of experiments to show the action of various substances, and of the same substances under different conditions, on varnished surfaces.

It was at first supposed that the rain which fell during this storm was either charged with some substance not usually found in rain water, and hence not in the air, or overcharged with some common ingredient of the air. Hence an attempt was made to produce with some of the rain water which had been collected a result similar to that produced by the rain upon the house and chairs by soaking pieces of varnished wood in the water. But a permanent change was not effected in the varnished surfaces; they whitened while in the water, but acquired the natural color after they were removed from the water. A similar result was produced by using distilled water. It was, therefore, concluded that if the effect had been produced by any substances contained in the water, the substances must have been a volatile one, or one not readily held in solution.

In order to ascertain whether or not the water had contained anything to which the result could be attributed and which had escaped from it after it had been collected, pieces of varnished wood were soaked in water, or subjected to a spray of water, into which had been introduced in small quantities substances with which the air might have been charged during the storm. The following were the results obtained:

When the wood was placed in water containing a little ammonia the varnished surface was slightly decomposed, but did not change in color, and about the same result was obtained by soaking a piece of the wood in water containing a trace of nitric acid. When a jet of water heavily charged with air was projected against a varnished surface the varnish remained unchanged, neither was any change effected by charging the water-spray with carbonic acid. Water was then allowed to drop upon a varnished surface placed in an atmosphere strongly impregnated with ozone, but even this energetic substance seemed to have no effect upon the surface. It was concluded from the results of these experiments, therefore, that the surfaces were not whitened by anything contained in the water.

It was known that hot water would whiten varnish, and experiments were now made to ascertain the minimum temperature of water required to produce the effect. The water was first heated to 100 F., and at this temperature it readily changed the color of a varnished surface to a permanent whiteness. Then, reducing the temperature of the water by small amounts, and subjecting varnished surfaces to its action, it was found that the whitening became gradually less decided and less readily produced until the temperature of about 90 F. was reached, when the water ceased to have any effect upon the surface.

There is probably no record of the temperature of the air in this region during the night of this storm. It is hardly probable, however, that the temperature was beyond or even nearly up to 90 F.

It now occurred to me that the action of falling rain upon the surface whitened was not correctly represented by soaking var-

nished wood in still water, but that to show the action properly the water should fall from a considerable height slowly upon the surface. Accordingly an apparatus was adjusted by means of which this could be effected, and the action of the water was found to be considerably modified. It was found that water at a temperature of 85 F. falling upon a varnished surface through a height of six feet produced an effect similar to that produced by the rain on the woodwork of Dr. Herr's house; it will be remembered the lowest temperature of still water that would whiten varnish was found to be about 90 F. This more energetic action of dropping water was doubtless due to the heat produced by the striking of the drops. When a solid falls through a considerable distance upon a surface, a measurable quantity of heat is generated by its stroke. As may be learned from any text-book on Natural Philosophy, the converse of Joule's equivalent is that a weight of 772 pounds falling one foot would generate sufficient heat to raise one pound of water one degree Fahrenheit. The strokes of a liquid must likewise produce heat as do the strokes of a solid.

It will be remembered that this rainstorm was accompanied by a strong wind, the action of which was to greatly increase the velocity of the rain, and consequently the amount of heat generated. The conclusion reached therefore is that the whitening of the varnished wood-work of Dr. Herr's house was caused by the blowing of a warm rain with great velocity against the house.

It might be added, this whitening of varnished surfaces is due to the action of heat on the resin of which the film is generally largely composed. Varnishes are prepared by dissolving resins in alcohol, oil of turpentine, etc., and when they are applied to surfaces the solvent either entirely, or almost entirely, evaporates, leaving a transparent coating consisting either entirely, or almost entirely, of resin. The varnish film is not often completely whitened, but its outer surface only becomes white. The action of alcohol in restoring the color is that it dissolves the white film, and produces a thin layer of alcoholic varnish.

SELECTIONS.

CARPETS.

Carpets play such an important part in household ornamentation, and vary so greatly in price and quality, that a few hints in regard to the attractiveness and durability of the different kinds may not be without interest to our readers. Among the novelties in this line are wood carpets, formed of strips of hard wood mounted on linen crash, and coming, like ordinary carpets, in roll. It may be laid on any floor, dining-room or hall, and makes, when waxed, a very good dancing surface. For summer it is especially desirable, on account of its freedom from dust and the readiness with which it may be swept, while in winter it is only necessary to lay down a few mats or rugs in order to give the room the air of cosy warmth so cheerful when the snow is flying without. This carpet retails at from \$1.25 to \$1.50 per yard, and will last a lifetime. Mattings are also excellent for sum-

*A paper read before the Lancaster Society, by Prof. Baker, of the State Normal School at Millersville.

mer use, especially in the warmer States. They may be purchased for about forty cents per yard, though the so-called seamless matting retails for seventy cents. When on the approach of winter the matting is somewhat worn, and it is desired to put down a carpet, the matting may be left on the floor, forming as it does, a very good lining for the carpet. For this purpose felting is too thin and is now no longer used. A good lining, however, is made of a layer of cotton-batting stitched between sheets of manilla paper, protecting the carpet and deadening the noise. It costs in the neighborhood of ten cents a yard. Among carpets proper the Moquette is the best for the money. Its colors are richer and more lasting. It is soft and durable, and usually attractive in design. These carpets may be purchased for \$1.25 or \$1.50 per yard, and are equal to anything in this line which comes cheaper than \$5. One of the most serviceable cheap carpets is a body Brussels. It will outlast the best ingrain, besides always appearing richer and more elegant. The prices range from nine to twelve shillings, and the border, which always adds greatly to the effects, sells at the same figure. A small pattern, floral or geometrical, in subdued colors, on white, gold or gray ground, will be found most desirable. In buying an ingrain there is nothing gained by paying four shillings more per yard in order to obtain a three-ply, when it has been found by experience that a two-ply will wear equally long and well. Ingrains with a half cotton warp sell as low as thirty cents a yard. A class of goods called terry, an ingrain without figures, is a very popular carpeting just now. It comes in pretty greens, browns, red or copper shades, and sells at seventy cents. As the ground for a few bright mats, the effect is charming.—*Popular Monthly*.

SORGHUM AS A PROFITABLE CROP.

Sorghum growing should receive the attention of every farmer who grows corn. Although a source from which sugar may be obtained, sorghum is also profitable for its fodder and seed alone, and when the farmers begin to realize the value of the ground seed as food for stock it will be a regular crop wherever it can be produced. Dr. Collier, late Chemist of the Agricultural Department, states that sorghum can be grown in any climate, or on any soil that produces seed and fodder, sorghum produces seed, fodder and syrup. The system of cultivation is the same for both corn and sorghum, though at the time of putting in the seed sorghum demands less labor. The quality of sorghum seed is nearly the same as that of corn, but is valuable in a dietary point of view, while a mixture of ground corn and sorghum seed is superior to either when fed alone to stock. The yield of seed per acre is about the same as that of corn, and is as easily harvested; but a little more labor is required in order to separate the seed in the barn. The fodder is sweeter than that of corn, possessing, therefore, a greater proportion of nutriment, and will keep in a green or succulent condition much longer than corn fodder, which is a very important item.

It is not necessary to strip the stalks early, nor is there a loss of saccharine matter by allowing the fodder to mature, as the most

available syrup is obtained after the seeds are thoroughly ripe. When the stalks are stripped of the leaves and the fodder bundled and cured under the system known as "blading" it makes the cleanest and best provender known, and even after the stalks are ground and pressed they may be utilized for feeding purposes, as it is impossible to completely deprive them of their saccharine matter. In making syrup the common method now pursued is for farmers to combine and procure the necessary machinery, or for a farmer to procure such for himself, and charge a commission to his neighbors for grinding the cane and extracting the syrup; or, as it is done with thrashing machines, there are those who make a business of extracting the syrup, the cost of making the syrup varying from 12 to 25 cents per gallon. Each gallon of syrup yields about six pounds of sugar, but as the experiments are annually cheapening the cost of manufacture, in a short time the expenses will be but very little.

We do not, however, value sorghum for its sugar alone, but also for its syrup. In the South during the war sorghum syrup was a common article, and proved an excellent substitute for molasses. There was no difficulty in its manufacture, for on every farm was a rude mill which pressed the juice from the cane, and this was in a few hours boiled down to the consistency of syrup. No sugar was made, however, as the method of crystallizing the saccharine matter from sorghum was then unknown. With the improved methods and machinery of the present day there is no reason why every farmer should not grow his own syrup, and at a small expense.

With the advantages in favor of sorghum of being a valuable seed producer, and the excellence of the leaves for feeding purposes, with the conversion of the stalks into sugar, it should share with corn a portion of the space on every farm, especially as it stands the droughts better and germinates sooner when planted, as well as being quicker in growth and less liable to injury from frosts than corn.

MILK AS AN ABSORBENT.

The following synopsis by the *Sanitarian*, of a paper by Dr. Dougall, of Glasgow, detailing experiments conducted with a view of discovering the absorptive power of milk in various volatile substances, will be of interest:

Dr. Dougall inclosed in a jar a portion of certain substances giving off emanations, together with a uniform quantity of milk, for a period of eight hours. At the end of that time a sample of milk was drawn by means of a pipette from the lower stratum of the vessel exposed in the jar; and we find that the following were results of his experiments:

	<i>Smell in Milk.</i>
1. Coal Gas.....	distinct.
2. Paraffine Oil.....	strong.
3. Turpentine.....	very strong.
4. Oil of.....	very strong.
5. Tobacco smoke.....	very strong.
6. Ammonia.....	moderate.
7. Musk.....	faint.
8. Asafetida.....	distinct.
9. Stale urine.....	faint.
10. Crocus.....	faint.
11. Cheese (stale).....	distinct.
12. Chloroform.....	moderate.
13. Putrid fish.....	very bad.
14. Camphor.....	moderate.
15. Decayed cabbage.....	distinct.

It thus became obvious that the milk had

absorbed the emanations of all the substances to which it had been exposed, and it further transpired that all the specimens examined retained their distinctive odors for as long as fourteen hours after their removal from the glass jar in which they had been exposed.

Cream, according to Dr. Dougall, may be regarded as acting in much the same manner as milk; indeed, although it contains less water than milk, yet it has special qualities of its own which may perhaps make it even more liable to retain offensive and dangerous emanations than the parent fluid itself. Abundant evidence has, however, been given to show that far more care is needed in connection with the storage of milk than has heretofore been regarded as necessary, and this especially where milk or cream is kept in apartments or wards occupied by sick persons. If the emanations to which the milk is exposed are of a diseased and dangerous quality, it is all but impossible that the sample can remain free from offensive and dangerous properties; and it should become an invariable rule to keep as little milk as possible in sick rooms, and never to allow a supply which has been thus exposed to unwholesome emanations to be used for food.

Under these circumstances it has been lately held desirable to boil all milk which is open to suspicion before using it. In the course of several epidemics in which milk has acted as the vehicle of infection, it has been noticed that persons who had only consumed it after it had been boiled escaped all ill results, whereas our members of the same family or community, who had not taken that precaution, had been attacked with disease.

CELLARS.

The housekeeper cannot be grateful enough for a dry, cool cellar, but she can best show her gratitude by keeping it sweet and clean, and allowing no decayed vegetables or other rubbish to taint the air, offend the nostrils and lay the foundations of disease. It would seem as though no person of good judgment would either build or hire a house without giving the cellar due consideration, for if it is not or cannot be kept dry and sweet, the family is certain to suffer. No matter if you are poor, and the price of the rent has to be considered; doctor's bill cost more than sanitary measures for preserving the health. The cellar should extend under the entire house, if possible, and be not less than seven and a half deep, with an entrance leading to the kitchen as well as one from the outside. It is about as unfortunate for a housekeeper to have all the vegetables and meat brought in through the house for winter storage as to be obliged to reach the cellar from an outside door.

If one is about building a cellar it is wise to arrange one of the chimneys so that a flue may be used for ventilating purposes. If windows alone be depended upon they should be perfectly weather-tight to exclude the cold draughts in winter which keep the house at freezing point in spite of fire tides. In summer they should be covered with wire netting so as to admit the air and keep the place clean, cool and safe. The drains should be carefully attended to and covered in the same way, and care should be particularly taken that rats

and mice find no entrance. The bottom may be cemented. In some localities it is necessary to drain the soil by artificial means in addition to cementing the bottom. At all events the cellar must be perfectly dry to be healthful. Persons, without being aware of it, become accustomed to bad odors arising from musty cellars, while new comers are instantly aware of the tainted and unwholesome atmosphere the household is constantly inhaling. Many serious cases of illness may be traced to this source.

Sometimes the windows and doors are not so arranged as to keep up a constant circulation of air, and the apartment will become musty and a mould will form on the walls. It will be impossible to keep milk and other perishable things where there is this condition. If ventilation cannot be secured through the chimney, place a wooden spout eight or ten feet high against the back or side of the house, opening into the cellar. Then another tube from the outside, near the ground, that shall open at the bottom of the cellar. Thus a circulation of air will take place from the bottom to the top. Wash the walls and ceiling with lime white-wash with which a little carbolic acid has been mixed. This will destroy the mould on the walls, and proper ventilation will prevent its future formation.—*Providence Star*.

SICK ANIMALS.

It is a remarkable fact that we seldom see a sick animal. Of course, when a beast or bird becomes a little weak, it is an easy prey to carnivorous animals that are always on the lookout for chances, and this will keep down the number of sick subjects that would otherwise come before us. But it is not likely that it would keep down all, and allowing, therefore, for this possibility of an early taking off a weak subject, we should still see some and certainly many more than we do. We think it is tolerably certain that when in a state of nature there is not near so many diseases follow an animal as when it is under domestic care.

It is quite probable that there is much more in the popular phrase about killing things with kindness than we imagine. Not that we should be harsh and unfeeling, but we do many things under the feeling of care that are unnecessary, and even an injury to do. We do things for certain reasons, and then continue the practice from habit without any reason at all. Take for instance the way a brood of young chickens are treated. It is quite likely that if there is any long grass about or tall weeds, the young may be dragged through by a thoughtless hen till the little chickens are tired out or perhaps lost. To guard against this the hen is put into a coop as soon as the little chickens are hatched till they are strong enough to go pretty well wherever she may lead them. This usually being the case on farms, the practice became rather common, till every one thinks a young brood with the must be cooped up. They who should refuse or neglect to follow this practice would be thought to be very green people. No one ever thinks to ask why they do this. Only it is the practice and it is done.

But the experience of large numbers prove that many young chicks are lost every year

by the most attentive painstaking. It is not too much to say that not one half—and this is a good average—ever live to grow to maturity. On the other hand, how rarely is it that a hen which 'steals her nest,' fails to bring up nearly or quite the whole lot? The fact is that the young getting through the coop and hearing the mother's calls to come back, are rendered nervous and subject to disease to a far greater extent than they would be if entirely trusted to the hen's own care. In fact, physical exercise and cheerfulness are as essential to the health in an animal as they are to the human race.

How the lack of these things operate injuriously on animal life, is shown by the experience with animals in the zoological gardens and menageries. If they are taken at nature age and placed in confinement, they are nearly sure to die, as everybody knows who has endeavored to bring up in this way a captive rabbit or bird.

INCREASED DURATION OF LIFE.

The stage to which we have at present attained may be stated thus: Compared with the period 1838-1854 (the earliest for which there are trustworthy records) the average of a man's life is 41.9 years instead of 39.9, and of a woman 43.3 instead of 41.9 years, an addition of eight per cent. to the female life and five per cent. to the male. Of each thousand males born at the present day, forty-four more will attain the age of thirty-five than used to be the case previous to 1871. For the whole of life the estimate now is that of one thousand persons (one-half males and one-half females) 35 survive at the age of forty-five, 26 at fifty-five, 9 at sixty-five, 3 at seventy-five, and 1 at eighty-five. To put the case in another way, every thousand persons born since 1870 will live about 2,700 years longer than before. In other words, the life of a thousand persons is now equal in duration to that of 1,070 persons previously; and 1,000 births will now keep up the growth of our population as well as 1,070 births used to do. This is equivalent in result to an increase of our population, and in the best form, viz: not by more births but by fewer deaths, which means fewer maladies and better health. What is more, nearly 70 per cent. of this increase of life takes place (or is lived) in the "useful period"—namely, between the ages of twenty and sixty. Thus of the 27,000 additional years lived by each thousand of our population 70 per cent., or 1,890 years, will be a direct addition to the working power of our people.

It is to be remembered that there might be a great addition to the births in a country with little addition to the national working power—may, with an actual reduction of the national wealth and prosperity—seeing that, regarded as "economic agents," children are simply a source of expense, and also are a majority of the elderly who have passed the age of three-score. On the other hand, as already said, only one-quarter of the longer or additional life now enjoyed by our people is passed in the useless periods of childhood and old age, and more than one-third of it is lived at ages when life is in its highest vigor, and most productive alike of wealth and enjoyment.—*Cornhill Magazine*.

BREAD-MAKING.

The old saying, "bread is the staff of life," has sound reason in it. Flour made from wheat, and meal from oats and Indian corn, are rich in the waste-repairing elements, starch and albumen, and head the list of articles of food for man. Good bread makes the homeliest meal acceptable, and the coarsest fare appetizing, while the most luxurious table is not even tolerable without it; Light, crisp rolls for breakfast, spongy, sweet bread for dinner, and daky biscuit for supper, cover a multitude of culinary sins; and there is no one thing on which the health and comfort of a family so much depends as the quality of its home-made loaves.

Bread-making seems a simple process enough, but it requires a delicate care and watchfulness, and a thorough knowledge of all the contingencies of the process, dependent on the different qualities of flour, the varying kinds and conditions of yeast, and the change of seasons; the process which raises bread successfully in winter making it sour in summer. There are many little things in bread-making which requires accurate observation, and, while valuable recipes and well-defined methods in detail are invaluable aids, nothing but experience will secure the name merited by so few, though earnestly coveted by every practical, sensible house-keeper—"an excellent bread-maker." These things are indispensable to success—good flour, good yeast, and watchful care. Good flour adheres to the hand, and, when pressed, shows the imprint of the lines of the skin. Its tint is cream white. Never buy that which has a blue-white tinge. Poor flour is not adhesive, can be blown about easily, and sometimes has a dingy look, as though mixed with ashes. Never use flour without sifting; and a large tin or wooden pail with a tight-fitting cover, kept full of sifted flour, will be found a great convenience. All kinds of flour and meal, except buckwheat and Graham, need sifting, and all except wheat flour should be bought in small quantities, as they become damp and musty by long standing.

To Bake Bread.

Here is an important point, for the bread may be perfect thus far and then be spoiled in baking. No definite rules can be given that apply equally well to every stove and range; but one general rule must be observed, which is to have a steady, moderate heat. The oven must be just hot enough; if too hot, a firm crust is formed before the bread has expanded enough, and it will be heavy. Many test the oven by sprinkling a little flour on the bottom; if it browns very quickly it is too hot, but if it browns gradually, it is just right. An oven in which the hand can not be held longer than to count twenty moderately, is hot enough. When the bread is done (to test which, break apart and press gently with the finger; if elastic it is done, but if clammy, not done, and must be returned to the oven), wrap in a coarse towel or bread cloth and place each loaf on its edge until cool. If by accident or neglect the bread is baked too hard, rub the loaves over with butter, wet the towel in which they are wrapped, and cover with another dry towel. In winter bread dough may be kept sweet several days by placing it where it will be cold without freezing, or by putting it so deep into the flour barrel as to exclude it entirely from the air. When wanted for use make into bread, or, by adding the proper ingredients, into cake, rusk, biscuit, apple dumplings, chicken pie, etc.—*Fireside Journal*.

OUR LOCAL ORGANIZATIONS.

LANCASTER HORTICULTURAL AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular monthly meeting of the County Agricultural Society was held on Monday, December 1st, in the City Hall.

The following members were present: James Wood, Little Britain; J. C. Linville, Salisbury; Calvin Cooper, Bird-in-Hand; Henry M. Engle, Marietta; Casper Hiller, Conestoga; M. D. Kendig, Manor; Joseph F. Witmer, Paradise; C. L. Hunsecker, Manheim; John R. Buckwalter, Salisbury; Henry Wise, Gap; F. R. Diefendicker, city; Dr. J. P. Wickersham, city; John H. Landis, Manor; W. H. Brosius, Drumore; L. S. Reist, Manheim; Johnson Miller, Warwick, and J. M. Johnston, city.

In the absence of the President, Vice President Engle took the chair.

On motion, the reading of the minutes of the previous meeting was omitted.

Henry Wise, of the Gap, was proposed and elected to membership.

Committee Reports.

Mr. J. C. Linville, from the committee on the premiums to be awarded to the competitors who tried to grow the largest yield of corn from a given plot of ground, read the reports of the competitors. The competitors were under fifteen years of age, and the plot of ground in each case was a measured eighth of an acre.

Frank Buckwalter's Report.

The ground was timothy and clover sod, from which a crop of hay was taken the previous year. It was plowed about the 10th of May, harrowed three times and rolled once. 40 pounds of phosphate was drilled in on the 17th of May and the corn was planted on the same day. The rows were marked out with the plow 3 feet 10 inches apart; the corn was planted in hills 3 feet apart, 2 grains being put in each. It set well; shovel harrowed it on June 4th, 12th, 13th and 19th; hoed and shovel harrowed it again on the 21st of July. I cut the corn about the middle of September and husked it in the beginning of November. There were 14 bushels of corn in the ear and 6 bushels and 46 pounds of shelled corn.

Franklin B. Hershey's Report.

I proceeded to grow the eighth acre of corn in the following manner: I plowed around soil in the spring, without manure or fertilizer. I harrowed it three times with a Penn harrow. The corn was planted as Burpee's Chester county Mammoth corn. Drilled in the corn on the 16th of May. Shovel-harrowed it three times, and gave it three hoeings. Cut it off on the 25th of September. Husked the crop on the 11th of November. The result was 692 pounds of corn (12 bushels.)

Owen H. Buckwalter's Report.

The ground planted was timothy and clover sod plowed down. A crop of hay was taken from it during the previous year. It was plowed about the 10th of May, harrowed three times and rolled once. I drilled 25 pounds of phosphate on two-thirds of the plot, on the 17th of May, and marked the seed on the same day. The rows were marked out 3 feet 10 inches apart. The corn was planted in hills two feet apart, with two grains to each hill. On June 4, 12, 13 and 16, the corn was shovel harrowed; on the last named day 10 pounds of phosphate was put on the other third of the plot. On June 13 the corn was hand-hoed. It was cut about the middle of September and husked early in November. The result was 6 bushels and 57 pounds of shelled corn.

Crop Reports.

H. M. Engle reported a fine crop of corn, both in quality and quantity. Winter grain does not look very promising. Grass fields look as well as usual. Late potatoes did not do so well as the early ones. The apple crop was disappointing. Drouth and

great heat caused the apples to drop, and they had to be converted into cider.

Casper Hiller reported a good crop of corn, but not an extra one. Potatoes were a moderate crop. He said the White Elephant potatoes were the best he ever had. The grain fields look well. So does the grass. Apples were a poor crop. The winter apples are few.

M. D. Kendig reported the farmers as busy with their tobacco. Grain looks well; the stand is good.

J. C. Linville said the farmers have put their fattening cattle into their stalls; they are the poorest seen around here for some years; the prices paid were 4¹/₂ and 4¹/₂ cents per pound; and they are not only thin in flesh but ordinary in quality.

Shoeing Horses.

J. C. Linville read the following essay on the above subject:

If we were to believe all the statements going the rounds of the papers in regard to the fallacy and uselessness of shoeing, and the positive injury resulting therefrom, we should be led to think that a new and important discovery had been made in the management of horses.

The fact is, that most farmers work their colts unshod until lameness or icy roads compel them to have them shod. A horse is never safe on solid ice without shoes with steel toes and caulks, although he may do well without on soft snow or frozen ground. In fact, unshod horses never "fall" in soft snow, and are, in that respect, safer than with shoes. The fact is also overlooked that there is a great difference in the quality of horses' hoofs. Some hoofs are so tender they will not stand work on the farm, much less to travel stony roads. With good hoofs I do not find it necessary to have much shoeing done in the summer season, not having much teaming on the roads. In the winter time I always have one span of horses "roughed all around" to do the mill going, &c., on icy roads. The assertion that all horses can travel unshod the pavements of cities and stony country roads is absurd.

The Tramp Question.

Henry M. Engle read an essay on hard times, ascribing them principally to over-production. It described the situation at the present time very minutely and laid down some general rules whereby relief could be extended to such as needed it most successfully. Economy was inculcated as a main feature to tide over the period of stress.

Jos. F. Witmer made some remarks on the subject of the essay. Alluded to the tramp question and the abundance of work in his neighborhood during the past twelve months.

C. L. Husecker said the beggars have always existed. No matter how good the crops are, the needy will always be with us. Our crops, both here and in England, are cheaper than they have been for many years and yet there are hungry men in America as well as in Great Britain. We shall always have the poor and the ignorant. It is the duty of those who have to give to those who have not.

The tramp question was very fully discussed by Messrs. Kendig, Husecker, Engle and others. It was stated that all farmers stood ready to contribute to aid the poor in their neighborhood, but the question was how to apply the farmer's charity most effectively.

How to Keep Seed Corn.

Joseph H. Witmer said he selected his seed corn at husking time. He picks out the choicest ears and then puts it away carefully. He never had trouble about its coming up. If corn is kept where it dries out before freezing weather comes, no trouble will ever be had with it.

W. H. Brosius said the grains at the butt end of an ear always give the earliest corn.

Dr. Wickersham stated that his father selected his seed corn at shelling time, and then took off the corn at both ends of the cob, using that in the middle for planting.

Others members alluded to the experiments made at the experimental stations, which demonstrated

that the corn at the ends of the ear gave better results than that out of the middle.

H. M. Engle said that the State Horticultural Society would meet in this city in next January, and he suggested that a committee be appointed by this society to make such arrangements for the proper reception of the members as were necessary.

On motion, Dr. Wickersham, M. D. Kendig and James Wood were placed on the committee.

M. M. Kendig stated that he had spoken with Mr. George W. Hensel, of Quarryville, about delivering a lecture before the County Society on his observation in Europe on the condition of agriculture there. Mr. Hensel consented to lecture before the Society at an early day.

It was also announced that a meeting of the State Agricultural Society would probably be held in this city at an early day.

Referred Questions.

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

Is it best to allow cattle to run in the yard in winter during fair weather? Referred to James Wood.

Do insects play an important part in the fertilization of blossoms? Referred to Dr. J. P. Wickersham.

Does it pay to cover strawberries in winter? If so, what is the best material for the purpose. Referred to Henry M. Engle.

Does the soil lose fertility by being plowed in the fall and exposed to the freezing of winter. Referred to J. R. Buckwalter.

On motion, the Society adjourned.

FULTON FARMERS' CLUB.

The December meeting of the Fulton Farmers' Club was held at the residence of Lindley King, in Fulton township. The members were all present except Solomon L. Gregg. The visitors present by invitation were Samuel Davenport, Thomas J. King, Alvan King and Edwin M. Stebbles.

Lindley King exhibited a sample of his corn, which was very fine.

E. Henry Haines asked if a field from which a crop of wheat had been cut last harvest, and which was well set with grass, would raise as good corn next year as it would if left stand a year and moved?

Montillon Brown had never experimented to test it, but the prevailing opinion is that it is better to let it stand a year, as the roots will grow longer.

Lindley King would prefer it to stand one or two years, as it would be more likely to stand the dry weather.

Marshall Nesbit would let it stand at least one year.

E. M. Stubbs said that it would depend on the condition of the soil. Manure heavy enough and nothing would be gained by letting it lay. He had raised as good corn the fourth year as he did the first. The seventh year the best of all.

Day Wood had a lot that had been in corn for thirty years, and still raised good crops.

E. H. Haines knew of a lot that had been in corn for seventeen years, and it would take all that had been raised in that time to make one good crop.

William King asked what would be the best time to apply rock or phosphate to grass as a top dressing.

E. H. Haines had success in applying it both in the fall and spring, and would do it now if he had the rock.

M. Brown had never tried it but once. Put it on clover when about six inches high. It about doubled the amount of grass.

M. Nesbit would apply it right away.

Lindley King: Would a large growth of clover left on the ground injure the next year's crop of grass?

J. R. Blackburn: If it has been pastured it will not.

E. H. Haines: If it has been pastured would rather have it on than off. Sometimes when not pastured it will smother the grass; it also makes a harbor for mice.

Montillon Brown did not think it would do harm. He once had a pasture where part of it was eaten off very close, while the remainder of it had a heavy growth left on it. Both parts killed badly in the winter. He did not see much difference.

Rebecca D. King: What is the best way to fatten poultry for market?

G. A. King: Feed plenty of whole corn.

E. Cauffman: Put whole corn in a box with stalks across the top so that they can reach it, but cannot get on it.

Ed. Stubbs: Cannot fatten turkeys while they are growing. After they have their growth they will fatten on most any feed. They do as well wandering about as confined.

E. H. Haines: Ed. is square on the turkey business. Turkeys are a nuisance, and ought to be abolished by law. They trespass on the neighbors and make dissatisfaction. He would willingly do without Thanksgiving to get rid of them. The only redeeming feature about them is that they eat grass-hoppers.

F. K. Haines: Milk will fatten both young turkeys and young chickens.

Jos. R. Blackburn: Which is the better to mix with corn to fatten cattle, oats or wheat bran?

Montillon Brown thought there was very little difference at present prices.

Lindley King would prefer bran, but corn alone is cheaper.

Day Wood and M. Nesbit would prefer oats.

M. Nesbit: What is the best feed to make cows milk well?

M. Brown: Wheat bran and corn meal mixed with chaff or cut straw well, but its preparation requires time.

L. King: Corn meal and bran.

E. M. Stubbs: Bran and ship stuff; same money's worth.

E. H. Haines: Corn meal and bran of equal bulk.

Day Wood: One third bran to two-thirds cob meal.

Afternoon Session.

The stormy state of the weather prevented the usual thorough inspection of the farm and outbuildings, members satisfying themselves with viewing the barn, cattle, hogs, &c.

The following criticisms were made on the farm and farm management:

E. H. Haines: Hogs nice; fatter than profitable; commenced feeding too soon; think it a waste to make so fat, cattle look remarkably well, feeding on corn meal only; grass cattle hard to beat; think the host from appearance might calculate to stay another year.

M. Brown: The host was fortunate in selecting his cattle. All cattle do not improve so fast.

E. Stubbs remarked that the drovers considered Mr. King the best judge in the neighborhood.

G. A. King: It takes less corn to make stock fat if you begin early in the fall.

The host chose a selection entitled "Old Meadows," which was read by Sadie A. Brown, advocating top dressing; but breaking up is better if permanent pasture is not desired.

Carrie Blackburn recited a poem entitled "There's Danger in the Town," in a very creditable manner.

E. K. Haines' selection was, "The Farmer's Duty to Youth and to American Agriculture."

E. Stubbs extolled the manner in which his neighbor, E. Lindley King, was raising his son. He knows what his father is doing and will be able to transact business for himself if required. Some of the members remarked that sons knew much less about the working of the farm than the daughters did about the house as a rule.

It was agreed that more confidence between children and parents would tend to the keeping of our youth on the farm.

Sadie A. Brown recited a poem, "Napoleon at Götta," and the club adjourned to meet at Montillon Brown's on the 1st Saturday in January, 1885.

A bushel of apples will make from four to four and a half pounds of evaporated fruit.

LINNÆAN SOCIETY.

The Linnæan Society met on Saturday, November 29, 1884, in the Museum Rooms, at 2:30 o'clock in the afternoon, the president, Hon. J. P. Wickersham, in the chair.

Dues collected, minutes read and approved, and donations to the Museum examined, and found to consist of the following:

Mr. David Evans, of North Queen street, donated a specimen of a white worm which he found under his carpet, which seemed to be cutting it, although the worm was not present in very great numbers. Some months ago two ladies called upon Dr. Rathvon and stated that a worm was destroying their carpet, but he could not give any opinion upon it nor yet suggest a remedy until he knew what kind of worm it was (and perhaps not them) as from their representations, it seemed to be different from the "Carpet Beetle" (*Lathrens scrophularia*) which is now so destructive in various parts of the country.

This worm is three-fourths of an inch in length, of a white waxy color, with a reddish brown conical head; the three thoracic segments are short, and very faintly tinged with brown, especially along their posterior margins. It appears to have twenty segmented divisions in its long slender body, but Dr. Rathvon says he is admonished, by microscopic illustration, that this is only an appearance, and that there are really only twelve, without the head. Four white, short, anterior, and two posterior bristles seem to supply the place of feet.

This white worm is the larva of a Dipterous insect (Two winged flies) belonging to the family *Cecropiæ*, of Leach; and the genus *Scenopius*; and, although I have not immediate success to the imago, I have little doubt it is *Scenopius pallipes* of Thomas Say. The fly is scarcely a quarter of an inch in length, black, with a metallic luster, and with pale feet; and has an alar expansion of less than half an inch. In form this genus differs so much from the general form and habits of the *Cecropiæ* that Prof. Loew considers it the type of a new family. It is not well known that many of the species of the family with which it is now allied, are parasitic upon the bodies of various species of *Bombus* and *Vespa*; as well as other HYMENOPTERA. From its slender pedicelled abdomen, the genus *Cecropis* strongly resembles some of the wasps—especially *Euclyptus*, but *Scenopius* has a thick, and almost sessile, abdomen.

Cloths saturated with coal oil, benzine, creosote, turpentine, or camphor, placed under the infested parts of carpets, will kill or expell both *Scenopius* and *Aethalia*.

On the 23d of August last Mr. H. L. Zahn brought to the Curators the trunk of a common "sunflower" (*Helianthus annuus*), the pith of which had been seriously infested by the larva of a Dipterous insect which seems to belong to the great family MUSCIDEÆ, of which our common Horse-fly is the type. These larvae were from 10 to 12 millimetres in length and about 2 mm in diameter; two retractile caudal tubercles, and a dark retractile head. Sulphur yellow in color, and a uniformly glossy surface throughout. Thirteen segments, no feet, without any apparent power of progressive locomotion, when taken from their burrows and laid on a plane surface—merely a writhing, or tumbling contortions, similar to some of the footless larvæ of *Coleoptera*, and HYMENOPTERA. Body moderately firm, and very tenacious of life, living longer than usual in alcohol. They are located mainly between the outer woody stalk and the inner fiber or pith, except in the lateral branches, and these were entirely excavated from base to apex, causing the leaves to wilt and preventing the expansion of the flowers. Only three of those retained for experiment pupated, on the 5th of September, the remainder perished. Dr. Rathvon was being waiting since then for the evolution of the imago, but as the vitality of the pupæ is probably destroyed by drought, being kept in a warm room, he will now run the risk of securing specimens in the spring from those stalks that may remain out of all winter. It is difficult to maintain the proper condi-

tions for the successful transformation of such insects as survive the winter, if it is desired to have them accessible to frequent observation.

The pupæ is one quarter of an inch long, one-sixteenth in diameter; light sulphur yellow in color; twelve distinctly marked segments, and terminates somewhat abruptly at both ends.

Judging from the large trunk and branches, and the excavations made therein, there must have been a large number of these larvæ present, and but for the fact that those under my observation pupated in the case, I should have concluded that they pupated under ground, especially as many holes were cut through the stalks; but mine upon no semblance of a cocoon.

Sundry specimens of insects and insect larvæ, collected in the hickory grove of Wheatland, near Lancaster; and among them the larvæ and imago of *Clytus pictus*, an insect, the larvæ of which are present in thousands, and are rapidly destroying the hickory trees on those premises. Also a specimen of *Trenex colubata*, captured in the act of depositing its eggs in the trunk of a hickory tree.

Several small branches of hickory illustrating the deadly work of a "Girdler," doubtless *Onciderus singulatus*, is a "pruner"—probably *Elysipticon patator*, and the ramified excavations of a species of *Scolytus*—perhaps *carag.*, from the same locality. In the same trees I also detected species of *Saprinus* and *Holotrypa*—hard, black and glossy coleopterous insects; but these are perhaps only present in the wood that is dead. A spider (*Epeira glaucitica*) and a black cricket (*Acheta niger*) from the same locality.

A specimen of the "Whorl bug" (*Rehbra ovavaria*) in the act of destroying a "Red legged grass-hopper" (*Calopteryx femor-rubra*).

Specimens of the larvæ, pupæ and imago of *Anobium laevifrons*, and also their fecal granulations—the insect that has recently been found infesting the cigarettes and fine smoking tobacco, described in the FARMER and the Bulletin for October, 1884.

Specimens of the cocoons of *Enopletta stansia*, or "Saddle back moth." See FARMER and Bulletin for October and November, 1884.

S. M. Seuer donated a birds nest found on the pavement after the recent wind storm. It is neatly constructed of horse hair. Also exhibited specimens of incinerated animal remains from the "Lancaster Crematorium."

Portfolio of garden plants, neatly mounted and specimens of the ornamental grass known as ENLALIA JAPONICA ZERINA, a native of Japan, from Dr. S. S. Rathvon.

The following donations were made to the Library: *New Era* of November 22, containing Reminiscences of James Buchanan; copies of the *Daily Examiner*, *Intelligence* and *New Era*, containing "A Dedication of Lancaster Crematorium," U. S. Patent Office Gazette, Vol. 29, Nos. 4 to 8; Book buyer for November; Fowles & Wells Co., Election Prize; Prospectus of the Life and Letters of Joel Barlow; two European newspapers; FARMER for November, 1884; two Volumes of Historical Scraps; Home Journal, Utica, N. Y.; *Linnæan Bulletin*, Vol. 1, No. 5, October, 1884; Magrath of Western History, Vol. 1, No. 1; prospectuses of scientific books, etc.

Dr. Baker read an interesting and valuable paper on "The Curious Effects of a May Storm." As the paper contains his investigations of a curious effect that occurred here in Lancaster during a rain storm, the paper was ordered to be printed in daily papers, FARMER and Bulletin. Dr. Baker was requested to make his observations by the members of the LIBRARY.

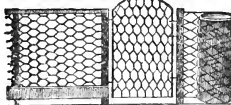
Bills amounting to \$2.25 for Bulletin, postage, &c., were ordered to be paid. It was reported to the Society that the greater number of all the teachers present at the Teachers' Institute had availed themselves of the opportunity to visit the Museum, and the members were pleased to hear of it and would be still more gratified to see some of them become active, working members of the Society. Several letters on file and one answered.

The Society, on motion, then adjourned to meet on Saturday, January 5th, 1885, at 2:30 o'clock in the afternoon, the December meeting being passed on account of being so near Christmas.

The Newark Machine Co. will arise at once from its ashes.

The Newark Machine Co., of Newark, O., whose factory burned on Saturday morning, July 5th, consumed a large number of Clover Hullers, Grain Drills, Rakes, Monarch Fans, &c. A large force of men are now at work building Clover Hullers, Grain Drills &c. They are getting out material at the B. & O. Shops, at Zanesville, and John H. Thomas & Sons, Springfield, who have kindly tendered them their factories, at which places they are getting out the woodwork for Clover Hullers, &c., and expect to have some on the market by August 1st. They have received many letters and telegrams from different manufacturers throughout the U. S., offering them all in any way. The firms that have heretofore supplied them with raw material, have telegraphed them, offering anything they may have that could be used in the construction of their implements, at low prices and long credits. Their insurance is about \$250,000, distributed among 51 first-class companies in this Country and Europe, and the adjusters are now here and at work and expect to finish the whole thing soon. The Company has commenced building one shop 225 feet by 40 feet, 2 stories high, and 200 feet of shelving, to be used for work shop and paint room, and they expect to be ready after August 1st to fill any orders in their line of goods.

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